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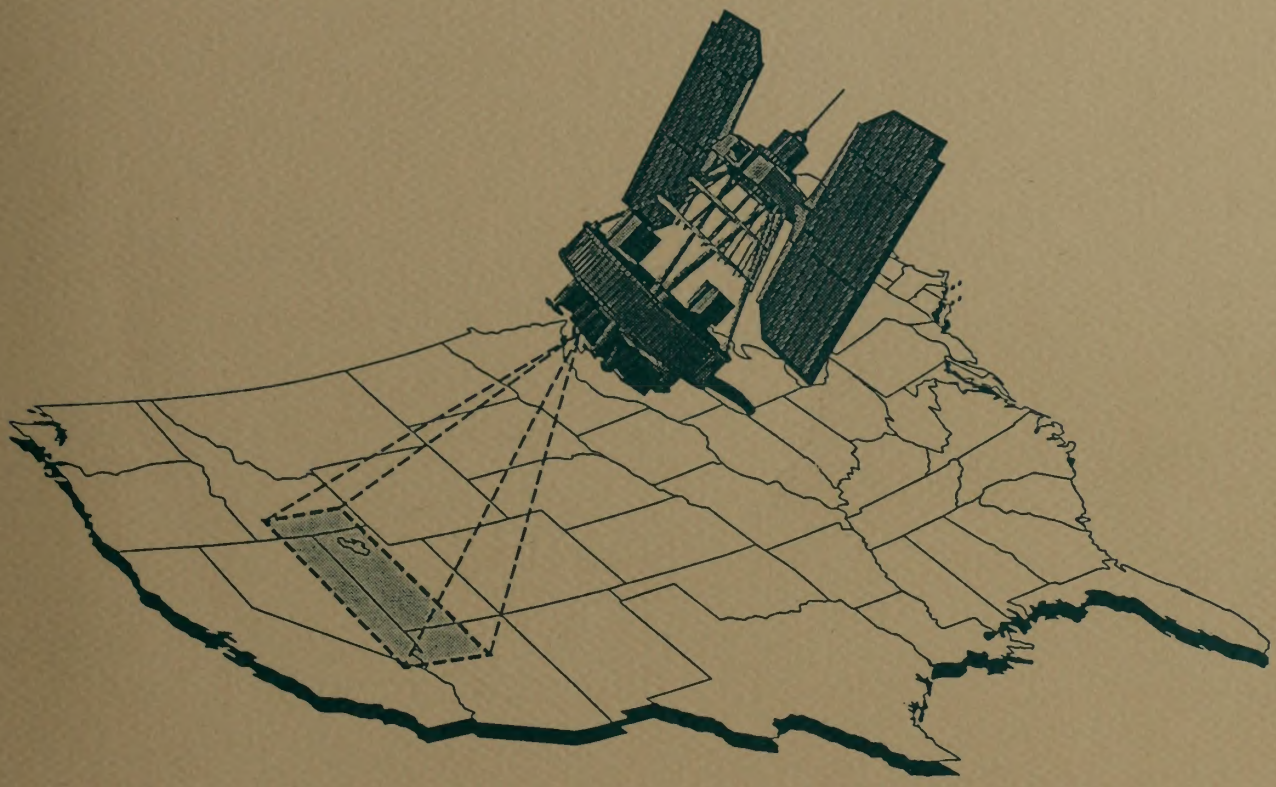

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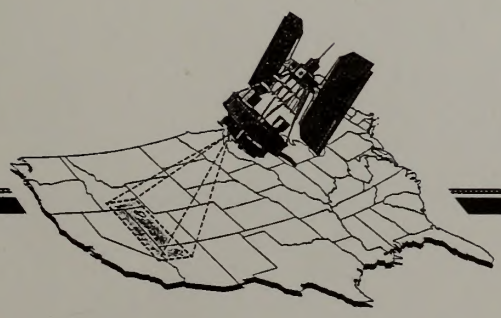

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REFERENCES

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REFERENCES

GENERAL

Michael Clayton & Associates. 1986. Western Regional Corridor Study.

USDA. 1986. Humboldt National Forest Land and Resource Management Plan, Final Environmental Impact Statement. Forest Service.

___. 1987. Sawtooth National Forest Land and Resource Management Plan, Final Environmental Impact Statement. Forest Service.

USDI. 1987. Malad Hills Management Framework Plan. Bureau of Land Management.

___. Cassia Resource Management Plan. Bureau of Land Management.

___. 1987. Egan Resource Management Plan, Final Environmental Impact Statement and Record of Decision. Bureau of Land Management.

___. 1984. Egan Resource Area Management Plan, Final Environmental Impact Statement and Record of Decision. Bureau of Land Management.

___. 1986. Elko Resource Management Plan, Final Environmental Impact Statement and Record of Decision. Bureau of Land Management.

___. 1985. Elko Wilderness Technical Report. Bureau of Land Management - Elko District.

___. 1986. Ely Resource Area Management Plan, Draft and Final Environmental Impact Statement. Bureau of Land Management.

___. 1986a. Draft Environmental Impact Statement: House Range Resource Area. U.S. Bureau of Land Management.

___. 1986b. Draft Environmental Impact Statement: Warm Springs Resource Area. U.S. Bureau of Land Management.

___. 1986. House Range Resource Final Environmental Impact Statement and Proposed Resource Management Plan. Bureau of Land Management.

___. 1987. House Range Resource Management Plan, Record of Decision. Bureau of Land Management.

___. 1988. Jarbridge Resource Area and Twin Falls Management Framework Plan - Land Use Plan Amendment. Bureau of Land Management.

___. 1987. Jarbridge Resource Area Management Plan and Record of Decision. Bureau of and Management.

___. 1985. Jarbridge Resource Area Management Plan, Final Environmental Impact Statement. Bureau of Land Management.

___. 1988. Twin Falls Management Framework Plan - Land Use Plan Amendment. Bureau of Land Management.

___. 1987. Jarbidge Resource Management Plan and Record of Decision. Bureau of Land Management.

___. 1985. Jarbidge Resource Management Plan, Final Environmental Impact Statement. Bureau of Land Management.

___. 1983. Schell Resource Management Plan, Decision Summary and Record of Decision. Bureau of Land Management.

___. 1988. Snake River Resource Area Management Plan, Draft and Final Environmental Impact Statement. Bureau of Land Management.

___. April 1975. Tracy-Hunt 345kV Transmission Project UP&L Intertie No. 2. Environmental Analysis. Bureau of Land Management.

___. 1987. Warm Springs Resource Area Management Plan, Draft and Final Environmental Impact Statement. Bureau of Land Management.

___. 1983. Wells Resource Area Management Plan, Record of Decision. Bureau of Land Management.

___. 1983. White Pine Power Project Draft Environmental Impact Statement. Bureau of Land Management. Nevada State Office.

AIR QUALITY

Bureau Of Land Management (BLM). 1990. Thousand Springs Power Plant Northeastern Nevada, Air Quality, Technical Report. Elko, Nevada: USDI, BLM, Elko District Office.

Enviromental Protection Agency (EPA). 1985a. Compilation of Air Pollutant Emission Factors, AP-42 Document, Fourth Edition.

U.S. Department of Commerence (USDC). 1982. National Oceanic Atmospheric Administration. Monthly Normals of Temperature, Precipitation and Heating and Cooling Days 1951-80, Idaho. Ashville, NC: National Climatic Center.

___. 1982. National Oceanic Atmospheric Administration. Monthly Normals of Temperature, Precipitation and Heating and Cooling Days 1951-80, Nevada. Ashville, NC: National Climatic Center.

___. 1982. National Oceanic Atmospheric Administration. Monthly Normals of Temperature, Precipitation and Heating and Cooling Days 1951-80, Utah. Ashville, NC: National Climatic Center.

USDI. 1983. White Pine Power Project, Air Resources Baseline, Technical Report. Bureau of Land Management, Nevada State Office.

BIOLOGY

American Ornithologist's Union (AOU). 1983. Checklist of the Birds of North America. Sixth Edition. Allen Press. Lawrence, Kansas. 877pp.

Austin, George. 1989. Nevada State Museum of Natural History. Personal communication, October 4, 1989.

Banks, R.C., R.W. McDiarmid and A.L. Gardner. 1987. Checklist of Vertebrates of the U.S., the U.S. Territories and Canada. United States Department of the Interior, Fish and Wildlife Service Resource Publication 166, Washington, D.C. 79 pp.

Behle, W.H. and M. P. 1975. Utah Birds. Utah Museum of Natural History. Paragon Press, Salt Lake City, Utah.

Behnke, R.J. 1981. Systematic and Zoogeographical Interpretation of Great Basin Trouts. Pages 95-124 in R.J. Naiman and D. L. Soltz eds., Fishes in North American Deserts. John Wiley and Sons, New York.

___ and M. Zarn. 1976. Biology and Management of Threatened and Endangered Western Trouts. U.S.D.A. Forest Service General Technical Report RM-28. 45 pp.

Bekstrand, Kraig. 1990. Wildlife Biologist, Nevada Department of Wildlife, Personal Communication, July, 1990.

Benton, Bob. 1990. Wildlife Bioligist, FWS, Salt Lake City, Utah. Personal Communication, August 9. 1990.

Boyce, Douglas PhD. 1989. UNHP. Personal communication. October 9, and September 11, 1989.

Bradley, Pete. 1989. Biologist, Nevada Department of Wildlife. Personal communication, October 2, 1989.

Brown, D. E. (ed). 1982. "Biotic Communities of the American Southwest-United States and Mexico" from Desert Plants Vol. 4, No. 1-4. University of Arizona.

Burleigh, T.D. 1972. Birds of Idaho. The Caxton Printers, Ltd., Caldwell, Utah.

Burt, W.H. and R.P. Grossenheider. 1976. A Field Guide to the Mammals, Field Marks of all North American Species found North of Mexico. Houghton Mifflin Co., Boston. 289 pp.

Cochran, M.H. and E.L. Smith. 1983. Intermountain Movements by a Desert Bighorn Ram in Western Arizona. Desert Bighorn Council Transactions, pp.1-2.

Clark, S. 1989. Vegetative Communities Within the Southwest Intertie Project and a List of Possible Sensitive Species. Draft, Done for Dames & Moore. September 28, 1989.

Clark, T.W. 1987. Mammals in Wyoming. University of Kansas Museum of Natural History. Public Education Series No. 10. University Press of Kansas, Lawrence, Kansas. 314 pp.

Collins, J.T., R. Conant, J.E. Huheey, J.L. Knight, E.M. Rundquist and H.M. Smith. 1982. Standard Common and Scientific Names for North American Amphibians and Reptiles. Second edition. Society for the Study of Amphibians and Reptiles. Herpetological Circular No. 12. 28 pp.

Deacon, J.E. and J.E. Williams. 1984. Annotated List of the Fishes of Nevada. pp. 103-118 in Proceedings of the Biological Society of Washington 97(1).

DeBolt, A. 1989. An Illustrated Guide to the Sensitive Plants of Burley District, Bureau of Land Management. Technical Bulletin 89-3. (February) BLM, Idaho State Office, Boise.

DeBolt, Ann. 1989. An Illustrated Guide to the Sensitive Plants of Burley District Bureau of Land Management. Idaho BLM Tech. Bull. 89-3

Eaton, Sid. 1989. Biologist, Nevada Department of Wildlife. Personal communication, October 9, 1989.

Erickson, Duane, 1990. Biologist, Nevada Department of Wildlife. Personal Communication, January 18, 1990.

Findley, J.S. 1987. The Natural History of New Mexico Mammals. University of New Mexico Press. 163 pp.

Foree, Steve. 1989. Biologist, Nevada Department of Wildlife. Personal communication, September 4, 1989.

Gates, G.H. 1967. Elk. Pages 31-42. In New Mexico Wildlife Management, L.S. Gordon, ed. New Mexico Department of Game and Fish, Santa Fe, New Mexico. 250 pp.

Glad, J.B. 1976. Taxonomy of Menzelia mollis and Allied species (Loasaceae). Madroña 23: 283-293.

Gleason, R.L. and T.H. Craig. 1979. Food Habits of Burrowing Owls in Southeastern Idaho. Great Basin Naturalist 39:274-276.

Gould, F. W. 1951. Grasses of Southwestern United States. The University of Arizona, Tucson.

Groves, Craig. 1989. INHP. Personal communication. October 5, 1989.

Hansen, C.G. 1980. Habitat. Pages 64-79. In The Desert Bighorn, It's Life History, Ecology and Management, G. Monson and L. Sumner, eds. University of Arizona Press, Tucson, Arizona. 370 pp.

Hall, E.R. 1949. Mammals of Nevada. University of California Press. Berkeley and Los Angeles, California. 710 pp.

Hardenbrook, D.B. 1990. Nevada Summary of Data on Distribution and Frequency of Desert Tortoises with Signs of Upper Respiratory Disease Syndrome. Paper Presented at the Fifteenth Annual Meeting and Symposium, The Desert Tortoise Council.

Hardy, T. 1979. The Interbasin Area Report. USDI and the State of Nevada. Reno, Nevada.

Harrison, B.F., PhD. 1980. Botanical Survey of Threatened, Endangered and Other Rare Plants of the Schell Resource Area Ely District. USDI, BLM-Ely Nevada. August 29, 1980.

Hayward, C.L., C. Cottam, A.M. Woodbury and H.H. Frost. 1976. Great Basin Naturalist Memoirs: Birds of Utah. Brigham Young University, Provo, Utah.

Hickman, T.J. and D.A. Duff. 1978. Current Status of Cutthroat Trout Subspecies in the Western Bonneville Basin. Great Basin Naturalist 38(2):193-202.

Hoffmeister, D.F. 1986. Mammals of Arizona. University of Arizona Press, Tucson, Arizona. 602 pp.

Hubbs, C.L., R.R. Miller and L.C. Hubbs. 1974. Hydrographic History and Relict Fishes of the North-central Great Basin. California Academy of Science, Vol. 7, 259 pp.

Idaho Department of Fish and Game (IDFG). 1989a. Idaho's Amphibians and Reptiles: Description, Habitat and Ecology. Idaho Wildlife, Spring 1989. Boise, Idaho.

___. 1989b. List of Species of Special Concern. (Pending approval by Idaho State Fish and Game Commission, December 1989.)

___. 1989c. Idaho Department of Fish and Game Nongame Plan 1986-1990, as amended December, 1989.

___. 1985. Idaho's Nongame, Species of Special Concern. Idaho Wildlife, Spring 1985. Boise, Idaho.

Johnsgard, P.A. 1975. North American Game Birds of Upland and Shoreline. University of Nebraska Press, Lincoln, Nebraska. 183 pp.

Knight, Teri. 1989. NNHP. Personal communication. September 28, December 5, 1989.

Lamb, S. H. 1975. Woody Plants of the Southwest. The Sunstone Press. Santa Fe, New Mexico.

Larrison, E.J. and D.R. Johnson. 1981. Mammals of Idaho. University Press of Idaho, Moscow.

Larsen, P.A. 1967. Pronghorn Antelope. Pages 61-68. In New Mexico Wildlife Management, L.S. Gordon, ed. New Mexico Department of Game and Fish, Santa Fe, New Mexico. 250 pp.

La Rivers, I. 1962. Fish and Fisheries of Nevada. Carson City, Nevada. Nevada State Fish and Game Commission. 782 pp.

Lee, D.S., C.R. Gilbert, C.H. Hocutt and R.E. Jenkins. 1980. Atlas of North American Freshwater Fishes. U.S. Department of the Interior, Fish and Wildlife Service. North Carolina Biological Survey pub. No. 1980-12. 867 pp.

Lindsey, Kathy. BLM. Personal Communication. July 28, and September 11, 1989.

MacMahon, J. A. n.d. Deserts. The Audubon Society Nature Guides. Alfred A. Knopf. New York.

McQuivey, R.P. 1978. The desert bighorn sheep of Nevada. Nevada Department of Fish and Game. Wildlife Bulletin 6:1-81.

Monson, G. 1980. Distribution and Abundance. Pages 40-51. In The Desert Bighorn, It's Life History, Ecology and Management, G. Monson and L. Sumner, ed. University of Arizona Press, Tucson, Arizona. 370 pp.

Morse and Master. 1988. The Nature Conservancy. In a letter to Dames & Moore by UNHP, October 22, 1989.

Mosely, Robert. 1990. INHP. Personal communication. March 23, 1990.

Mosely, R. and C. Groves. 1990. Rare, Threatened and Endangered Plants and Animals of Idaho. Natural Heritage Section, Nongame and Endangered Wildlife Program, Idaho Department of Fish and Game.

Mozingo, H. N. and M. Williams. 1980. Threatened and Endangered Plants of Nevada: An Illustrated Manual. FWS and BLM. May 1980.

Murphy, J.R. 1977. Status of Eagle Populations in the Western United States. Pages 57-62. In Proceedings of the World Conference on Birds of Prey, October 1-3, 1975, R.D. Chancellor, ed. Vienna, Austria. International Council for Bird Preservation.

___. 1975. Status of Golden Eagle Populations in Central Utah, 1967-73. Raptor Research Report Number 3, Population Status of Raptors. Pages 91-96. In Conference on Raptor Conservation Techniques.

National Geographic Society. 1985. Field Guide to the Birds of North America. Washington, D.C.

Nelson, M.W. 1969. The Status of the Peregrine Falcon in the Northwest. In Peregrine Falcon Populations: Their Biology and Decline, J.J. Hickey, ed. University of Wisconsin Press.

Nelson, M.W. and P. Nelson. 1977. Power Lines and Birds of Prey. Pages 222-242. In Proceedings of the World Conference on Birds of Prey, R.D. Chancellor, ed. October 1-3, 1975. Vienna, Austria. International Conference on Bird Preservation.

Nevada Department of Wildlife (NDOW). 1989. Letter to Dames & Moore from Pete Bradley, Biologist, August, 1989.

___. 1985. Nevada Raptors. Their Biology and Management. Biological Bulletin No. 8. 113 pp.

___. 1984. A Policy Plan for the Management of Nevada's Wildlife through 1990. Volume 1, Game, Nongame and Fisheries. Nevada Board of Wildlife Commissioners and Nevada Department of Wildlife, Reno, Nevada. 108 pp.

___. 1980. Letter from NDOW to FWS, Reno. May 22, 1980.

___. Undated. Wildlife Water Development Maps.

Northern Nevada Native Plant Society. 1989. Endangered, Threatened and Sensitive Species of Nevada. Update. February 13, 1989.

Padilla, Butch. 1990. Habitat Specialist, Nevada Department of Wildlife, Personal Communication, July 1990.

Perkins, M.W. 1990. Wildlife Biologist, Ely District BLM. Unpublished report.

___. 1989. Unpublished nesting activity report. Egan Resource Area, Ely District BLM.

___ and W.J. Lindsey, 1983. Nesting Studies of Ferruginous Hawks in the Ely BLM District, Nevada. North American Bird Bander. Vol. 8(3):106-107.

Peterson, R.T. 1961. A Field Guide to Western Birds, Second Edition. Houghton Mifflin Company, Boston. 309 pp.

Podborny, Mike. 1990. Biologist, Nevada Department of Wildlife, Ely District. Personel Communication, July 27, 1990.

Quinn, Gerald. 1989. BLM. Letter to Dames & Moore. July 28, 1989.

Regional Environmental Consultants. 1991. Short-term Habitat Conservation Plan for the Desert Tortoise in Las Vegas Valley, Clark County Nevada. Prepared for Clark County, Nevada. January 3, 1991.

Reveal, James I. 1985. "New Entities and Combinations in Eriogonum (Polygonaceae)" in Great Basin Naturalist 45 (2): 276-80.

Rosenfeld, Mark 1989. University of Utah, Museum of Natural History. Personal communication, September 14, 1989.

Rosentreter, Roger, PhD. 1990. BLM. Personal communication. April 14, 1990.

Ryser, F.A., Jr. 1986. Birds of the Great Basin, A Natural History. Max C. Fleischmann Series in Great Basin Natural History. University of Nevada Press, Reno. 604 pp.

Sigler, W.F. and R.R. Miller. 1963. Fish of Utah. Utah Game and Fish Department. Salt Lake City, Utah. 203 pp.

Sigler, W.F. and J.W. Sigler. 1987. Fishes of the Great Basin. University of Nevada Press, Reno. 424 pp.

Simmons, N.M. 1980. Behavior. Pages 124-144 In The Desert Bighorn, It's Life History, Ecology and Management, G. Monson and L. Sumner, eds. University of Arizona Press, Tucson, Arizona. 370 pp.

Simpson, J. and R. Wallace. 1982. Fishes of Idaho. The University Press of Idaho, Moscow. 238 pp.

Smith, D.G. and J.R. Murphy. 1973. Breeding Ecology of Raptors in the Eastern Great Basin of Utah. Brigham Young University, Science Bulletin (Biol. Ser.), 18:1-76.

Smith, G.R. 1978. Biogeography of Intermountain Fishes. Great Basin Naturalist Memoirs. 2:17-42.

Stebbins, R.C. 1985. A Field Guide to Western Reptiles and Amphibians, Field Marks of All Species in Western North America, Including Baja, California. Houghton Mifflin Company, Boston. 336 pp.

Stephens, George. 1989. INHP. Personal communication. October 4, 1989.

Stewart. R.H. 1942. Mule Deer. Pages 42-51. In New Mexico Wildlife Management. New Mexico Department of Game and Fish, L.S. Gordon, ed. Santa Fe, New Mexico. 250 pp.

Stiver, San 1989. Biologist, Nevada Department of Wildlife, Personal communication, September 28, 1989.

Turner, R.M. 1982. Great Basin Desertscrub. Pp. 145-156. In Biotic Communities of the American Southwest-United States and Mexico, C. Brown, ed. Desert Plants Vol. 4, Nos. 1-4. University of Arizona.

U. S. Department of Agriculture (USDA), Forest Service (FS). 1989. Humboldt National Forest. Personal communication, July 27, 1989.

___. 1990. Letter to Dames & Moore from Rita Suminski, Biologist, Ely Ranger District. April 1990.

U. S. Department of the Interior (USDI), Bureau of Land Management (BLM). 1989. Elko District. Sensitive Species of Nevada. Nevada Natural Heritage Program. 1989 Report.

___. 1988. Desert Tortoise Habitat Management on the Public Lands: a Rangewide Plan. Bureau of Land Management. 23pp.

___. 1969. Bureau of Land Management Checklist, Mammals of the Ely District.

___. Not dated. Rangewide Plan for Managing Habitat of Desert Bighorn Sheep on Public Lands. 41 pp.

U.S. Department of Interior (USDI), Fish and Wildlife Service (FWS). 1990. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Mojave Population of the Desert Tortoise. Federal Register: 50 CFR Part 17. Vol. 55, No. 63, 12178-12191. April 2, 1990.

___. 1989a. Endangered and Threatened Wildlife and Plants. 50 CFR 17.11 and 17.12 U.S. Fish and Wildlife Service, Washington, D.C. 34 pp. January 1989.

___. 1989b. Endangered and Threatened Wildlife and Plants, Animal Notice of Review. Federal Register, Volume 54, No. 4:554-564. January 1989.

___. 1989c. Endangered and Theatened Wildlife and Plants; Desert Tortoise; Emergency Rule. Federal Register Vol. 50, 42270-42278.

___. 1987. Proposed Endangered Status for Independence Valley Speckled Dace and Clover Valley Speckled Dace. Federal Register Vol. 52, No. 181.

___. 1985. Endangered and Threatened Wildlife and Plants; Review of Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register: 50 CFR Part 17. September 27, 1985.

___. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-79131. 131 pp.

University of Idaho. 1980. FWR Bulletin No. 34.

Utah Division of Wildlife Resources (UDWR) 1989. Letter to Dames & Moore. November 1989.

___. 1987. Draft II Native Utah Wildlife Species of Special Concern Utah Division of Wildlife Resources. January 1987 (Revised).

Vigg, S. 1982. Ecology of the Nevadan Relict Dace, Relictus solitarius (Hubbs and Miller) with a Selected Bibliography of Great Basin Desert Fishes. Desert Research Institute Publication Number 50019, Reno, Nevada. 110pp.

Vinyard, G.L. 1984. A Status Report about the Independence Valley Speckled Dace (Rhinichthys osculus lethoporus), Independence Valley Tui Chub (Gila bicolor isolata) and Clover Valley Speckled Dace (R. o. oligoporus); Three Fishes Restricted to the Northeastern Portion of Nevada. Report to U.S. Fish and Wildlife Service, Reno, Nevada. University of Nevada, Reno. 19 pp.

Walker, Kenneth. 1989. BLM. Personal communication. August 17, 1989.

Welsh, S.L. and K.H. Thomas. 1979. Illustrated Manual of Proposed Endangered and Threatened Plants of Utah. FWS, BLM, and USFS.

Williams, Joe. Biologist, NDOW, 1990. Personal Communication, March, 1990.

Withers, Donna. 1990. USDI, Fish and Wildlife Service, Reno. Personal Communication, July 30, 1990.

Woffinden, N.D. and J.R. Murphy. 1977. Population Dynamics of the Ferruginous Hawk During a Prey Decline. Great Basin Naturalist 37(4): 411-425.

Young, David 1989. Threatened and Endangered Species Coordinator, Richfield District, BLM. Personal Communication.

Zeveloff, S.I. 1988. Mammals of the Intermountain West. University of Utah Press, Salt Lake City. 352 pp.

CULTURAL

Aikens, C. Melvin, ed. 1986. Current Status of CRM Archaeology in the Great Basin. Cultural Resource Series No. 9. Nevada State Office of the Bureau of Land Management. Reno, Nevada.

Aikens, C. Melvin and David B. Madsen. 1986. Prehistory of the Eastern Area. In Handbook of North American Indians, Great Basin, Volume 11, edited by Warren L. D'Azevedo, pp. 149-60. Smithsonian Institution, Washington D.C.

Aikens, C. Melvin and Younger T. Witherspoon. 1986. Great Basin Numic Prehistory, Linguistics, Archaeology and Environment. In Anthropology of the Desert West: Essays in Honor of Jesse D. Jennings. Carol J. Condie and Don D. Fowler, eds. University of Utah Anthropological Papers No. 110, Salt Lake City.

Aikens, C. Melvin. 1978. Indian Petroglyphs from White Pine County, Nevada. Miscellaneous Collected Paper 19. University of Utah Anthropological Papers 99:3-15. Salt Lake City, Utah.

Aikens, C. Melvin, David Cole, and Robert Stuckenrath. 1977. Excavations at Dirty Shame Rockshelter, Southeastern, Oregon. Tebiwa, Miscellaneous Papers of the Idaho State University Museum of Natural History 4. Pocatello.

___. 1970. Hogup Cave. University of Utah Anthropological Papers No. 93. Salt Lake City, Utah.

___. 1966. Fremont-Promontory-Plains Relationships, Including a Report of Excavations at the Injun Creek and Bear River Number 1 Sites, Northern Utah. University of Utah Anthropological Papers 82. Salt Lake City, Utah.

Ames, Ken M. 1976. The Narrows Site, Elmore County Idaho: Preliminary Report. Report on File, Idaho Division of Highways. Boise.

Arrington, L.J. 1958. Great Basin Kingdom. Harvard University Press, Cambridge, Maryland.

Barnes, Paul L. 1964. Archaeology of the Dean Site, Twin Falls County, Idaho. Washington State University, Laboratory of Anthropology, Report of Investigations 25. Pullman.

Beal, M.D. 1942. A History of Southeastern Idaho. Caxton Printers, Caldwell, Idaho.

Beatley, Janice C. 1976. Vascular Plants of the Nevada Test Site: Ecologic and Geographic Distributions. Office of Technical Information, Energy Research and Development Administration.

Beck, Charlotte and George T. Jones. 1988. Western Pluvial Lakes Tradition Occupation in Butte Valley, Eastern Nevada. In Early Human Occupation in Far Western North America: The Clovis-Archaic Interface, edited by Judith A. Willig, C. Melvin Aikens, and John L. Fagan, pp. 273-301. Nevada State Museum Anthropological Papers 21. Carson City, Nevada.

Bedwell, Steven F. 1973. Fort Rock Basin Prehistory and Environment. University of Oregon Books, Eugene, Oregon.

___. 1970. Prehistory and Environment of the Pluvial Fort Rock Lake Area of Southcentral Oregon. Unpublished Ph.D. Dissertation, Department of Anthropology, University of Oregon, Eugene, Oregon.

Beeley, Stephen. 1946. The Archaeology of a Utah Lake Site. Unpublished M.A. thesis, Department of Anthropology, University of Utah, Salt Lake City, Utah.

Berry, Claudia Helm. 1974. Archeological Survey in Sevier, Emery and Garfield Counties. Utah Archeology 20(4):1-7.

Bidwell, J. 1964. A Journey to California, 1841. Friends of the Bancroft Library, Berkeley, California.

Bolton, H.E. 1972. Pageant in the Wilderness. Utah State Historical Society, Salt Lake City, Utah.

Bousman, C. Britt, Charles D. Cheek, and Frank Leonhardy. 1979. An Assessment of the Archaeology and Recent Impact at the Rock Creek Site, Idaho 10-CA-33. Archaeological Research Associates Research Reports No. 21. Tulsa, Oklahoma. Report on File, Sawtooth National Forest.

Bowers, Alfred W. and C.N. Savage. 1962. Primitive Man on Brown's Bench: His Environment and His Record. Idaho Bureau of Mines and Geology, Information Circular 14. Moscow.

Bowers, Martha H. and Hans Muessig. 1982. History of Central Nevada: An Overview of the Battle Mountain District. Nevada State Office of the Bureau of Land Management. Reno, Nevada.
City.

Bryant, Edwin. 1948. Rocky Mountain Adventure. Arlington Edition, New York.

Butler, B. Robert. 1986. Prehistory of the Snake and Salmon River Area. In Great Basin, edited by Warren L. d'Azevedo, pp. 127-148. Handbook of North American Indians, Volume II, William G. Sturtevant, General Editor. Smithsonian Institution, Washington, D.C.

___. 1983. The Quest for the Historic Fremont and a Guide to the Prehistoric Pottery of Southern Idaho. Occasional Papers of the Idaho State University Museum of Natural History 33. Pocatello, Idaho.

___. 1980. The 1968 Excavations at the Braden Site (10-Wn-117), an Early Archaic Cemetery in Western Idaho. Pp. 117-129 in Anthropological Papers in Memory of Earl Swanson, Jr. Idaho Museum of Natural History, Special Publication. Pocatello, Idaho.

___. 1978. A Guide to Understanding Idaho Archaeology (Third Edition): The Upper Snake and Salmon River Country. Idaho State Historic Preservation Office, Boise.

___. 1967. More Haskett Point Finds from the Type Locality. Tebiwa 10(1):25.

___. 1965. A Report on Investigations at an Early Man Site near Lake Channel, Southeastern Idaho. Tebiwa 8(2):1-20.

___. 1963. An Early Man Site at Big Camas Prairie, South-central Idaho. Tebiwa: Journal of the Idaho State University Museum 6(1):22-33. Pocatello, Idaho.

Butler, B. Robert and Philip R. Waite. 1978. Final Report on Sampling and Evaluation of Archaeological and Historical Sites in or near Bureau of Reclamation's Authorized Salmon Falls Division, Twin Falls and Cassia Counties, Idaho. Idaho Museum of Natural History Archaeological Reports No. 17. Pocatello.

Callaway, Donald G., Joel C. Janetski and Omar C. Stewart. 1986. Ute. In Great Basin, edited by Warren d'Azevedo, pp. 336-367. Handbook of North American Indians, Volume 11, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Campbell, E.E. 1965. Miles Morris Goodyear. In The Mountain Men and the Fur Trade of the Far West, ed. L.R. Hafen, Vol. 2. Arthur H. Clark Company, Glendale.

___. 1988. Establishing Zion. Signature Books, Salt Lake City.

Caribou National Forest. 1985. Land and Resource Management Plan and Final Environmental Impact Statement for the Caribou National Forest and Curlew National Grassland. Pocatello, Idaho.

Cline, G.G. 1974. Peter Skene Ogden and the Hudson's Bay Company. University of Oklahoma Press, Norman.

Cramer, H.J. 1974a. The California Trail in Idaho: The Salt Lake Cutoff. U.S. Bureau of Land Management. Burley, Idaho.

___. 1974b. The Oregon Trail: Raft River to Salmon Falls Creek, Idaho. U.S. Bureau of Land Management. Burley, Idaho.

___. 1973. California-Oregon Trail: Fort Hall to Goose Creek, Idaho. U.S. Bureau of Land Management. Burley, Idaho.

Currey, Donald R. and Steven R. James. 1982. Paleoenvironments of the Northeastern Great Basin and Northeastern Basin Rim Region: A Review of Geological and Biological Evidence. In Man and Environment in the Great Basin, edited by David B. Madsen and James F. O'Connell, pp. 27-52. Society of American Archaeology Papers 2. Washington, D.C.

Daugherty, Richard D. and Francis Riddell. 1947. Appraisal of the Archaeological Resources of the Anderson Ranch Reservoir, Elmore County, Idaho. Columbia Basin Project, River Basin Surveys, University of Oregon, Eugene.

Day, S.H. and S.C. Ekins (eds.) 1951. 100 Years of History of Millard County. Art City Publishing Company, Fillmore, Utah.

d'Azevedo, Warren D., editor. 1986. Great Basin. Handbook of North American Indians, Vol. 11. Smithsonian Institution, Washington, D.C.

D'Easum, D. 1977. Sawtooth Tales. Caxton Printers, Caldwell, Idaho.

Drury, C.M. (ed.) 1963-1966. First White Women Over the Rockies. 3 vols. Arthur H. Clark Company, Glendale.

Egan, W.M. (ed.) 1917. Pioneering the West, 1846 to 1878. Howard R. Egan Estate, Richmond, Utah.

Elliot, R.R. 1973. History of Nevada. University of Nebraska Press, Lincoln.

Epperson, Terrence W. 1977. Final Report on 1976 Archaeological Evaluation of Bureau of Reclamation's Upper Snake River Project, Salmon Falls Division, Twin Falls and Cassia Counties, Idaho. Idaho Museum of Natural History Archaeological Reports No. 9.

Farnham, T.J. 1843. Travels in the Great Western Prairies, the Anahuac and Rocky Mountains, and in the Oregon Territory. Harper & Brothers, New York.

Fike, R.E. and J.W. Headley. 1979. The Pony Express Stations of Utah in Historical Perspective. Cultural Resources Series Monograph 2, Bureau of Land Management, Salt Lake City.

Fishlake National Forest. 1986. Land and Resource Management Plan and Final Environmental Impact Statement for the Fishlake National Forest. Richfield, Utah.

Fleming, L.A. 1967. A Settlement on the Muddy, 1865 to 1871: "A Godforsaken Place." Utah Historical Quarterly 35(2):147-172.

Fowler, David D. 1968. Archaeological Survey in Eastern Nevada, 1966. Desert Research Institute Publications in the Social Sciences 2. Reno, Nevada.

Fowler, Don D. 1986. History of Research. In Great Basin, edited by Warren L. d'Azevedo, pp. 15-30. Handbook of North American Indians, Volume II, William G. Sturtevant, General Editor. Smithsonian Institution, Washington, D.C.

Fowler, Don D., David B. Madsen, and E. M. Hattori. 1973. Prehistory of Southeastern Nevada. Desert Research Institute Publications in Social Science No. 6. Reno.

Foy, M.E. (ed.). 1931. By Ox Team from Salt Lake to Los Angeles, 1850: A Memoir by David W. Cheesman. Historical Society of Southern California Annual Publications 14(3):271-337.

Franzen, John C. 1981. Southeastern Idaho Cultural Resources Overview, Burley and Idaho Falls Districts. Commonwealth Associates Inc. Jackson, Michigan.

Franzwa, G. 1982. Maps of the Oregon Trail. Patrice Press, Gerald, Missouri.

Frazer, R.W. 1965. Forts of the West. University of Oklahoma Press, Norman.

Fremont, J.C. 1845. Report of the Exploring Expedition to the Rocky Mountains in the Year 1843, and to Oregon and North California in the Years 1843-44. Bair and Rives, Washington, D.C.

Gehr, E.A., E. Lee, G. Johnson, J.D. Merritt, and S. Nelson. 1982. Southwestern Idaho Class I Cultural Resources Overview. Professional Analysts, Eugene. Report to the Boise and Shoshone District, U.S. Bureau of Land Management.

Gillen, John P. 1936. Excavations at Nephi. Ms. on file, Department of Anthropology, University of Utah, Salt Lake City, Utah.

___. 1941. Archaeological Investigations in Central Utah. Peabody Museum of American Archaeology and Ethnology Papers 17(2).

Goetzmann, W.H. 1959. Army Exploration in the American West, 1803-1863. Yale University Press, New Haven.

Gowans, F.R. 1985. Rocky Mountain Rendezvous. Peregrine Smith Books, Layton, Utah.

Green, James P. 1972. Archaeology of the Rock Creek Site 10CA33 Sawtooth National Forest, Cassia County, Idaho. Unpublished MA Thesis, Idaho State University. Pocatello.

Green, Thomas. 1982. Pithouse Variability and Associations at Givens Hot Springs, Southwest Idaho. Paper presented at the 35th Annual Northwest Anthropological Conference, Burnaby, B.C.

Greever, W.S. 1963. The Bonanza West. University of Oklahoma Press, Norman.

Grosscup, Gordon L., Percy Train, James R. Heinricks, W. Andrew Archer and A.B. Meacham et al. 1974. Paiute Indians IV. Garland Publishing Inc., New York, New York.

Gruhn, Ruth. 1961a. The Archaeology of Wilson Butte Cave, South-central Idaho. Occasional Papers of the Idaho State University Museum of Natural History 6. Pocatello, Idaho.

___. 1961b. The Archaeology of Wilson Butte Cave, Southcentral Idaho. Unpublished Ph.D. Dissertation. Radcliff College.

Gunnerson, James H. 1969. The Fremont Culture: A Study in Culture Dynamics on the Northern Anasazi Frontier. Peabody Museum of American Archaeology and Ethnology, Harvard University Papers 59(2).

HDR Sciences. 1980a. Environmental Characteristics of Alternative Deployment Areas: Archaeological and Historical Resources. U.S. Air Force Ballistic Missile Office, MX Environmental Technical Report 21. Norton Air Force Base, California.

___. 1980b. Environmental Characteristics of Alternative Deployment Areas: Archaeological and Historical Resources. U.S. Air Force Ballistic Missile Office, MX Environmental Technical Report 23. Norton Air Force Base, California.

Hafen, L.R. and A.W. Hafen. 1954. The Old Spanish Trail. Arthur H. Clark Company, Glendale.

___. 1955. To the Rockies and Oregon, 1839-1842. Arthur H. Clark Company, Glendale.

Hafen, L.R. 1926. The Overland Mail, 1849 to 1869. Arthur H. Clark Company, Cleveland.

Hafner, A.L. 1967. 100 Years on the Muddy. Art-City Publishing Company, Springville, Utah.

Haines, A.L. 1981. Historic Sites Along the Oregon Trail. Patrice Press, St. Louis. Helfrich, D, H. Helfrich and T. Hunt. 1984. Emigrant Trails West. Craft Printers, Inc., Klamath Falls, Oregon.

Hardesty, Donald L. 1979. The Pony Express in Central Nevada. Cultural Resource Series 1, Bureau of Land Management, Nevada.

Harrington, Mark R. 1933. Gypsum Cave, Nevada. Southwest Museum Papers 8. Los Angeles, California

Harris, B. 1952. John Colter: His Years in the Rockies. Charles Scribner's Sons, New York.

Harris, B.K. 1961. The Towns of Tintic. Sage Books, Denver.

Heizer, R.F. and T.R. Hester. 1974. Two Petroglyph Sites in Lincoln County, Nevada. Contributions of the University of California Archaeological Research Facility 20:1-52.

Helfrich, D., H. Helfrich, and T. Hunt. 1984. Emigrant Trails West. Trails, West, Inc., Reno, Nevada. Printed by Craft Printer, Klamath Falls, Oregon.

Hill, J.J. 1930a. Spanish and Mexican Exploration and the Trade Northwest from New Mexico into the Great Basin. Utah Historical Quarterly 3(1):3-23.

___. 1930b. Antoine Robidoux: Kingpin in the Colorado River Fur Trade, 1824-1844. The Colorado Magazine 7(4):125-132.

Hokanson, D. 1988. The Lincoln Highway. University of Iowa Press, Iowa City.

Hull, Frank W. and Alec Avery. 1980. Cultural Resources Existing Data Inventory, Richfield District, Utah. Contract No. YA-512-CT9-176. Prepared for the Bureau of Land Management by the University of Utah Archaeological Center. Salt Lake City, Utah.

Hulse, J.W. 1971. Lincoln County, Nevada, 1864-1909: History of a Mining Region. Nevada Studies in History and Political Science No. 10, University of Nevada Press, Reno.

Humboldt National Forest. 1986. Humboldt National Forest Land and Resource Management Plan and Final Environmental Impact Statement. Elko, Nevada.

___. 1983. Cultural Resource Overview, Humboldt National Forest (draft). Elko, Nevada.

Hunt, T.H. 1974. Ghost Trails to California. American West Publishing Company. Palo Alto, California.

IMACS. 1987. Intermountain Antiquities Computer System User's Guide. University of Utah, Bureau of Land Management, Forest Service. Salt Lake City, Utah.

Inter-Tribal Council of Nevada. 1976. Nuwuvi: A Southern Paiute History. University of Utah Printing Service, Salt Lake City.

Irving, W. 1964. Astoria. University of Oklahoma Press, Norman.

Jackson, W.T. 1964. Wagon Roads West. Yale University Press, New Haven.

James, Steven R. and Charles D. Zeier. 1982. Eastern Nevada Study Unit. In an Archaeological Element for the Nevada Historic Preservation Plan, pp. 123-159. University of Nevada, Las Vegas. Prepared for Nevada Division of Historic Preservation and Archaeology.

James, Steven R., editor. 1981. Prehistory, Ethnohistory, and History of Eastern Nevada: A Cultural Resources Summary of the Elko and Ely Districts. Prepared for the Bureau of Land Management by the University of Utah Archaeological Center. Salt Lake City, Utah.

James, Steven R. and David J. Singer. 1980. Cultural Resources Existing Data Inventory, Salt Lake District, Utah. Contract No. YA-512-CT9-176. Prepared for the Bureau of Land Management by the University of Utah Archaeological Center. Salt Lake City, Utah.

Jameson, Sydney. 1948. Archeological Notes on Stansbury Island. Unpublished M.A. thesis, Department of Anthropology, University of Utah, Salt Lake City, UT.

Jennings, Jesse D. 1957. Danger Cave. University of Utah Anthropological Papers 27. Salt Lake City, Utah.

___. 1953. Danger Cave: A Progress Summary. El Palacio 60(5):179-213.

Jennings, Jesse D., Alan R. Schroedl and Richard N. Holmer. 1980. Sudden Shelter. University of Anthropological Papers 103. Salt Lake City, Utah.

Johansen, D.O. (ed.) 1957. Robert Newell's Memoranda. Champoeg Press, Portland.

Jorgenson, Joseph G. 1972. The Sun Dance Religion: Power for the Powerless. University of Chicago Press, Chicago, Illinois.

Judd, Neil M. 1926. Archaeological Observations North of the Rio Colorado. Bureau of American Ethnology Bulletin 82. Washington, D.C.

___. 1917. Notes on Certain Prehistoric Habitations in Western Utah. In Proceedings of the 19th International Congress of Americanists, pp. 119-124. Washington, D.C.

___. 1916. Archaeological Reconnaissance in Western Utah. Smithsonian Miscellaneous Collections 66(33):66-71. Washington D.C.

Kelly, Isabel T. 1964. Southern Paiute Ethnography. Glen Canyon Series 21, University of Utah Anthropological Papers 69. Salt Lake City, Utah.

Kelly, Isabel T. and Catherine S. Fowler. 1986. Southern Paiute. In Great Basin, edited by Warren d'Azevedo, pp. 368-397. Handbook of North American Indians, Volume 11, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Kelly, Michael S., James H. Cleland, Kathleen L. Hull, Alisen J. Macdougall, and Paul Friedman. 1990. Kern River Pipeline, Cultural Resource Survey Report, Nevada. Dames & Moore, San Diego.

Lavender, D. 1963. Westward Vision. McGraw-Hill Book Company, New York.

Leavitt, F.H. 1934. The Influence of the Mormon People in the Settlement of Clark County. M.A. Thesis, Department of History, University of Nevada, Reno.

Lee, J. 1916. Diary. Oregon Historical Society Quarterly 17:116-146, 240-266, 397-430.

Leonard, Z. 1978. Narrative of the Adventures of Zenas Leonard. University of Nebraska Press, Lincoln.

___. 1935. The Lincoln Highway. Dodd, Mead & Company, New York.

Lincoln Highway Association. 1918. The Complete Official Road Guide of the Lincoln Highway. Lincoln Highway Association. Detroit, Michigan.

Lindsay, LaMar W. and Christian K. Lund. 1976. Pint Size Shelter. Utah Division of State History, Antiquities Section Selected Papers 3(10). Salt Lake City, Utah.

Lindsay, LaMar W. and Kay Sargent. 1979. Prehistory of the Deep Creek Mountain Area, Western Utah. Antiquities Section Selected Papers 6(14). Utah State Historic Society.

Long, L.K. 1975. Pioche, Nevada and Early Mining Developments in Eastern Nevada. M.A. Thesis, Department of History, University of Nevada, Las Vegas.

Lothson, Gordon A. and K. Virga. 1981. Archaeological Test Excavations Phase II Testing at the Hagerman National Fish Hatchery, Hagerman Valley, Idaho. Eastern Washington University Reports in Archaeology and History 1-2.

Lowie, Robert H. 1924. Notes on Shoshonean Ethnography. Anthropological Papers of the American Museum of Natural History 20(3):185-314. New York.

Lyneis, Margaret M. 1982a. An Archaeological Element for the Nevada Historic Preservation Plan. University of Nevada. Las Vegas, Nevada.

___. 1982b. Prehistory in the Southern Great Basin. In Man and Environment in the Great Basin, edited by David B. Madsen and James F. O'Connell, pp. 172-185. Society for American Archaeology Papers 2. Washington D.C.

Madsen, David B. 1982a. Get It Where the Gettin's Good: A Variable Model of Great Basin Subsistence and Settlement Based on Data from the Eastern Great Basin. In Man and Environment in the Great Basin, edited by David B. Madsen and James F. O'Connell, pp. 207-226. Society for American Archaeology Papers 2. Washington, D.C.

___. 1982b. Prehistoric Occupation Patterns, Subsistence Adaptations, and Chronology in the Fish Springs Area, Utah. In Archaeological Investigations in Utah, edited by David B. Madsen and Richard E. Fike. Utah Bureau of Land Management, Cultural Resource Series 123, Salt Lake City, Utah.

___. 1980. The Human Prehistory of the Great Salt Lake Region. In Great Salt Lake, a Scientific, Historical and Economic Overview, edited by J. Wallace Gwynn, pp. 19-31. Utah Geological and Mineral Survey, Department of Natural Resources Bulletin 116. Salt Lake City, Utah.

Madsen, David B. and LaMar W. Lindsay. 1977. Backhoe Village. Utah Division of State History, Antiquities Section Selected Papers 4(12). Salt Lake City, UT.

Malouf, Carling and Ake Hultkrantz. 1974. Shoshone Indians. Garland Publishing Inc. New York.

Malouf, Carling. 1974. The Goshute Indians. In a Garland Series American Indian Ethnohistory, California and Basin-Plateau Indians, Shoshone Indians. Compiled and edited by David Agee Horr. Garland Publishing Inc., New York, NY.

___. 1940. The Archaeology of Sites along Fifteen-mile Creek. In the Archaeology of the Deep Creek Region, Utah, Carling Malouf, Charles E. Dibble, and Elmer R. Smith. Museum of Anthropology, University of Utah, Archaeology and Ethnology Papers 5. Reprinted in 1950 as Paper No. 5, University of Utah Anthropological Papers 1-9:50-64. Salt Lake City, Utah.

Manners, Robert A. 1974. Paiute Indians I. Garland Publishing Inc. New York, New York.

Martin, Curtis W., H.J. Armstrong, S.M. Crum, B.J. Kutz, and L.A. Wheeler. 1983. Cedar Siding Shelter: Archaeological Excavations of a Multi-aspect Overhang, Emery County, Utah. Utah Bureau of Land Management Cultural Resource Series 15. Salt Lake City, UT.

Marwitt, John P. 1986. Fremont Cultures. In Handbook of North American Indians, Great Basin, Volume 11, edited by Warren L. D'Azevedo, pp. 161-172. Smithsonian Institution, Washington D.C.

___. 1970. Median Village and Fremont Culture Regional Variation. University of Utah Anthropological Papers 95. Salt Lake City, Utah.

Merkley, A.G. (ed.). 1948. Monuments to Courage: A History of Beaver County. The Milford News, Milford, UT.

Miller, Susanne J. 1982. The Archaeology and Geology of an Extinct Megafauna/Fluted Point Association at Owl Cave, the Wasden Site, Idaho: A Preliminary Report. Pp. 81-95 in Peopling of the New World. Ballena Press Anthropological Paper 23. Ramona.

Morgan, D.L. 1964. The West of William H. Ashley. Old West Publishing Company, Denver.

___. (ed.). 1954. Utah: a Guide to the State. Hastings House, New York.

___. 1953. Jedediah Smith and the Opening of the West. University of Nebraska Press, Lincoln.

Morss, Noel. 1931. The Ancient Culture of the Fremont River in Utah. Peabody Museum of American Archeology and Ethnology Papers 12(3).

Murphy, T.W. and F.P. Frampton. 1986. Aboriginal Antelope Traps on BLM Lands in the Elko Area. Unpublished paper delivered at the Great Basin Anthropological Conference, Las Vegas, NV.

Murphy, Robert F. and Yolanda Murphy. 1986. Northern Shoshone and Bannock. In Great Basin, edited by Warren L. d'Azevedo, pp. 284-307. Handbook of North American Indians, Volume 11, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

___. 1960. Shoshone-Bannock Subsistency and Society. University of California Anthropological Records 6(7):293-338. Berkeley, CA.

Myhrer, Keith, William White, Stanton Relf. 1990. Archaeology of the Old Spanish Trail/Mormon Road from Las Vegas, Nevada to the California Border. Contributions to the Study of Cultural Resources, Technical Report 17. Bureau of Land Management, Nevada.

Myrick, D.F. 1958. Reproduction of Thompson and West's History of Nevada, 1881. Howell-North Books Berkeley.

___. 1963. Railroads of Nevada and Eastern California, 2 vols. Howell-North Books Berkeley.

National Park Service. 1987. California and Pony Express Trails: Missouri, Iowa, Nebraska, Kansas, Colorado, Wyoming, Utah, Idaho, Nevada, California, Oregon. Eligibility/Feasibility Study and Environmental Assessment for National Historic Trail Authorization. National Park Service. Denver, Colorado.

___. 1981. Mormon Pioneer National Historic Trail: Illinois-Iowa-Nebraska-Wyoming-Utah. Comprehensive Plan and Finding of No Significant Impact. National Park Service. Denver, Colorado.

Oglesby, R.E. 1963. Manuel Lisa and the Opening of the Missouri Fur Trade. University of Oklahoma Press, Norman.

Olsen, Godfrey S. 1940. Bruneau Canyon Notes - 1937. Report of the Historical Museum, University of Idaho, Southern Branch 1(1):6-8. Pocatello.

Ortiz, Alfonso. 1983. Southwest. Handbook of North American Indians. Vol. 10 Smithsonian Institution, Washington, D.C.

Paher, S.W. 1970. Nevada Ghost Towns & Mining Camps. Howell-North Books, Berkeley.

___. 1986. Las Vegas: As it Began - As it Grew. Nevada Publications, Las Vegas.

Patterson, Edna B, Louise A. Ulph, and Victor Goodwin. 1969. Nevada's Northeast Frontier. Western Printing and Publishing Company, Sparks, Nevada.

Pavesic, Max. 1983. The Western Idaho Archaic Burial Complex. Paper presented at the 36th Annual Northwest Anthropological Conference. Boise, Idaho.

Pavesic, Max and Daniel Meatte. 1980. Archaeological Test Excavations at the National Fish Hatchery Locality, Hagerman Valley, Idaho. Boise State University, Archaeological Reports 8.

Peterson, F.R. 1976. Idaho: A Bicentennial History. W.W. Norton & Company, New York.

Plew, Mark G. 1981a. A Preliminary Report on Archaeological Excavations at Nahas Cave. Idaho Archaeologist 4(3):1-7.

___. 1981b. Archaeological Test Excavations at Four Prehistoric Sites in the Western Snake River Canyon near Bliss, Idaho. Project Reports, No. 5, Idaho Archaeological Consultants, Boise.

___. 1980a An Archaeological Evaluation of the Nature Conservancy Tracts in the Snake River Birds of Prey Natural Area, Idaho. Idaho Archaeological Consultants Project Reports 2. Boise.

___. 1980b. Archaeological Excavations at Big Foot Bar, Snake River, Birds of Prey Natural Area, Idaho. Idaho Archaeological Consultants Project Reports 3. Boise.

___. 1980c. Archaeological Investigations in the Southcentral Owyhee Uplands, Idaho. Boise State University Archaeological Reports 7. Boise.

___. 1980d. Comments on Butler's "Native Pottery of the Upper Snake and Salmon River Country." Idaho Archaeologists (3):4-6.

___. 1980e. Fish Remains from Nahas Cave: Archaeological Evidence of Anadromous Fishes in Southwestern Idaho. Journal of California and Great Basin Anthropology 2(1):129-132.

___. 1979a. Nahas Cave: A Preliminary Report. Paper presented at the Annual Meeting of the Idaho Archaeological Society. Boise.

___. 1979b. Southern Idaho Plain Ware: Implications for Fremont-Shoshoni Relationships in Southwestern Idaho. Plains Anthropologist 24(86):329-335.

Poll, R.D. (ed.). 1978. Utah's History. Brigham Young University Press, Provo.

Powell, John Wesley and George W. Ingalls. 1874. Ute, Pai-ute, Go-Si Ute, and Shoshone Indians. Letter to the Commissioner of Indian Affairs.

Price, Sara Sue and Charles Burnett. 1950. A Preliminary Report of the Excavation of Juke Box Cave (42T020). MS Thesis on File, Department of Anthropology, University of Utah. Salt Lake, UT.

Rafferty, Kevin. 1984. On Common Ground: Las Vegas as a Cultural Frontier in Prehistory. Prepared for the Nevada Division of Historic Preservation and Archaeology by Division of Anthropological Studies, Environmental Research Center, University of Nevada, Las Vegas.

Rhodes, Lori E., Brenda L. Ringe, and Clyde M. Woods. 1990. J.R. Simplot Phosphate Slurry Pipeline, Conda to Pocatello. Dames & Moore, Denver.

Robinson, M.C. 1979. Water for the West: The Bureau of Reclamation, 1902-1977. Public Works Historical Society, Chicago.

Rogge, A.E. (editor). 1987. Cultural Resources Technical Report for Phase 1 of the Southern Idaho Project (partial draft). Dames & Moore, Phoenix, Arizona.

Rollins, P.A. (ed.). 1935. The Discovery of the Oregon Trail: Robert Stuart's Narratives. Charles Scribner's Sons, 1935.

Roske, R.J. 1986. Las Vegas: A Desert Paradise. Continental Heritage Press, Inc., Tulsa.

Rozaire, Charles E. 1964. The Archaeology of Lehman Caves National Monument. MS Thesis on File, Nevada State Museum. Carson City, NV.

Rudy, Jack R. 1953. An Archaeological Survey of Western Utah. University of Utah Anthropological Papers 12. Salt Lake City, UT.

Russel, Osborne. 1921. Journal of a Trapper or Nine Years in the Rocky Mountains. Syms-York, Boise, ID.

Sawtooth National Forest. 1987. Land and Resource Management Plan and Final Environmental Impact Statement for the Sawtooth National Forest. Twin Falls, Idaho.

Sawyer, Byrd W. 1971. Nevada Nomads: A Story of the Sheep Industry. Harlan-Young Press, San Jose, California.

Schaafsma, Polly. 1971. The Rock Art of Utah: From the Donald Scott Collection. Peabody Museum of American Archaeology and Ethnology Papers 65.

Sharrock, Floyd W. and John P. Marwitt. 1967. Excavations at Nephi, Utah 1965-1966. University of Utah Anthropological Papers 88. Salt Lake City, Utah.

Shellback, Louis. 1930. Researches in Idaho, Museum of the American Indian, Heye Foundation. Indian Notes 7:123-125. New York.

___. 1967. The Excavation of Cave No. 1, Southwestern Idaho, 1929. Tebiwa 10(2):63-72. Pocatello.

Shutler, Richard, Jr. 1961. Lost City: Pueblo Grande de Nevada. Nevada State Museum Anthropological Papers 5. Carson City, NV.

Shutler, Richard and Mary Shutler. 1963. Deer Creek Cave. Nevada State Museum Anthropological Papers 11. Carson City.

Simpson, James H. 1876. Report of Explorations Across the Great Basin of the Territory of Utah for a Direct Wagon-route from Camp Floyd to Genoa, in Carson Valley, in 1859. U.S. Government Printing Office, Washington, D.C.

Smith, Anne M. 1974. Ethnography of the Northern Ute. Museum of New Mexico Papers in Anthropology 17. Santa Fe, NM.

Smith, Elmer R. 1941. The Archaeology of Deadman Cave, Utah. Bulletin of the University of Utah, Vol. 32 (4). Revised in 1951 as University of Utah Anthropological Papers, No. 10. Salt Lake City, Utah.

Stearns, S. and F. Peterson. 1987. Investigation of a Possible Archaic Period Antelope Trap in Clover Valley, Nevada. Nevada Department of Transportation Archaeological Technical Report Series No. 4. Carson City, NV.

Steward, Julian H. 1974. Ute Indians I. Garland Publishing Inc. New York, New York.

___. 1938. Basin-Plateau Aboriginal Sociopolitical Groups. Bureau of American Ethnology Bulletin 120. Washington, D.C.

___. 1937. Ancient Caves of the Great Salt Lake Region. Bureau of American Ethnology Bulletin 116.

___. 1931. Archeological Discoveries at Kanosh in Utah. El Palacio 30(8):121-130.

___. 1932. Reports: Archaeological Field Work in North America during 1930 American Anthropologist 33:482.

___. 1933. Early Inhabitants of Western Utah, Part 1--Mounds and House Types. University of Utah Bulletin 23(7).

Stewart, Omer C. 1942. Cultural Element Distributions XVIII: Ute-Southern Paiute. University of California Anthropological Records 6(4):231-356. Berkeley, CA.

Stoffle, Richard W. and Henry F. Dobyns. 1982a. Nuvagantu: Nevada Indians Comment on the Intermountain Power Project, Intermountain-Adelanto Bipole I Transmission Line. Ethnographic (Native American) Resources. Report submitted to Applied Conservation Technology, Incorporated.

___. 1982b. Puaxant Tuvip: Utah Indians Comment on the Intermountain Power Project, Utah Section Intermountain-Adelanto Bipole I Transmission Line Ethnographic (Native American) Resources. Prepared by Applied Urban Field School, University of Wisconsin-Parkside for Applied Conservation Technology, Inc.

Stoffle, Richard W., Henry F. Dobyns and Michael J. Evans. 1983. Nungwu-uakapi: Southern Paiute Indians Comment on the Intermountain Power Project, Intermountain-Adelanto Bipole I Transmission Line. Report submitted to Applied Conservation Technology, Incorporated.

Stuart, Robert. 1935. The Discovery of the Oregon Trail: Robert Stuart's Narrative of His Overland Trip Eastward from Astoria in 1812 - 1813. Scribner & Sons, New York.

Struthers, Thomas. 1976. Final Report on Archaeological and Historical Resources of the Bureau of Reclamation's Upper Snake River Project, Salmon Falls Division, Twin Falls and Cassia Counties, Idaho. Idaho State University Museum Archaeological Reports 1. Pocatello.

Swanson, Earl H., Jr. n.d. The American Falls Reservoir. MS on file, Smithsonian Institution, River Basin Surveys. Lincoln.

___. 1972. Birch Creek: Human Ecology in the Cool Desert of the Northern Rocky Mountains 9000 B.C. - A.D. 1850. Idaho State University Press. Pocatello.

Swanson, Earl H., Jr., Donald Tuohy, and Alan Bryan. 1959. Archaeological Explorations in Central and South Idaho, 1958.1--Types and Distributions of Site Features and Stone Tools. Occasional papers of the Idaho State College Museum 2. Pocatello.

Taylor, Dee Calderwood. 1955. Archaeological Excavations Near Salina, Utah. Archeology 1(4):3-7.

Thomas, David H., Lorann S.A. Pendleton and Stephen C. Cappannari. 1986. Western Shoshone. In Great Basin, edited by Warren d'Azevedo, pp. 262-283. Handbook of North American Indians, Volume 11, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Thompson, Richard A., Georgia Beth Thompson and Jessie Embry. 1983. Class I Cultural Resources Inventory for the Cedar City District of the Bureau of Land Management, Part I Cultural Resource Overview (draft). Conducted by Mesa Corporation for the Bureau of Land Management Contract No. YA-553-CT0-1060. Orem, Utah.

Townley, J.M. 1986. The Pony Express Guidebook: Across Nevada with the Pony Express and Overland Stage Line. Great Basin Studies Center. Reno, Nevada.

___. 1973. Conquered Provinces: Nevada Moves Southeast, 1864-1871. Charles Redd Monographs in Western History. Brigham Young University Press, Provo.

Trenholm, Virginia and Maurine Carley. 1964. The Shoshonis: Sentinels of the Rockies. University of Oklahoma Press, Norman.

Tucker, Gordan C. 1983. Results of Archaeological Investigations Along the Nevada Section of the Proposed Intermountain Power Project (IPP) Intermountain-Adelanto Line 1 (Revised). Submitted to Applied Conservation Technology, Inc., Fullerton, California by Nickens and Associates, Montrose, Colorado.

___. 1976. The Archaeology of Salmon Falls Creek: A Study in Methodology. Idaho State University, Museum of Natural History Archaeological Reports 4. Pocatello.

Unruh, J.D. 1979. The Plains Across. University of Illinois Press, Urbana.

U.S. Department of Agriculture. 1986. Land and Resource Management Plan and Final Environmental Impact Statement, Toiyabe National Forest.

Utah State Historic Preservation Office. 1985a. Historic Themes Summary. Division of State History. Salt Lake City, Utah.

___. 1985b. Program Overview of Goals and Methods. Division of State History, Salt Lake City, Utah.

Vernstrom, C. 1933. Economic Study of Southern Nevada. Agricultural Experiment Station, University of Nevada, Reno.

Wanderley, A.W. 1976. New St. Joseph: A Case Study of Historic Archaeology. M.A. Thesis, Department of Anthropology, University of Nevada, Los Vegas.

Wasatch-Cache National Forest. 1985. Land and Resource Management Plan and Final Environmental Impact Statement for the Wasatch-Cache National Forest. Salt Lake City, Utah.

Weber, D.J. 1971. The Taos Trappers. University of Oklahoma Press, Norman.

Webster, Gary S. 1978. Dry Creek Rockshelter: Cultural Chronology in The West Snake River Region of Idaho ca. 4150-1300 B.P. Tebiwa 15:1-35.

Westergaard, W. (editor). 1923. Diary of Dr. Thomas Flint. Historical Society of Southern California Annual Publications 12(3):53-127.

White, W.G. 1990. West Point: A Look at the Past Through Window Glass. M.A. thesis, Department of Anthropology, University of Nevada, Las Vegas.

Wishart, D.J. 1979. The Fur Trade of the American West, 1807-1840. University of Nebraska Press, Lincoln.

York, Robert. 1974. Test Excavations and Controlled Surface Collecting in Long Valley, Nevada. MS Thesis on File, Nevada State Museum. Carson City, NV.

Young, F.G. (ed.). 1899. The Correspondence and Journals of Captain Nathaniel J. Wyeth. University Press, Eugene.

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Geology and Minerals

Allard, Phil. 1990. Personal communication between Phil Allard, U.S. Bureau of Land Management and Charles Condrat, Dames & Moore, February 8, 1990.

Anderson, Larry W. and Darryl G. Miller. 1979. Quaternary Fault Map of Utah. Fugro, Inc., Long Beach, California. 35 pp.

Arabasz, W.J., J.C. Pechmann and E.D. Brown. 1989. Evaluation of Seismicity Relevant to the Proposed Siting of a Superconducting Supercollider (SSC) in Tooele County, Utah. Utah Geological & Mineral Survey, Miscellaneous Publication 89-1. 107pp.

Barnhard, Theodore P. 1985. Map of Fault Scarps Formed in Unconsolidated Sediments, Elko 1° x 2° Quadrangle, Nevada and Utah. USGS Map MF-1791.

Bond, John G. 1978. Geologic Map of Idaho. Idaho Dept. of Lands, Bureau of Mines and Geology.

Chatterton, Mark. 1990. Personal communication between Mark Chatterton, U.S. Bureau of Land Management, and Charles R. Condrat, Dames & Moore. June 5, 1990.

Coats, Robert R. 1987. Geology of Elko County, Nevada. Prepared by the U.S. Geological Survey and the Nevada Bureau of Mines and Geology. University of Nevada, Reno. Bulletin 101.

Coggins, George C. 1990. Public Natural Resources Law. Clark Boardman Co. Inc. New York.

Covington, Harry R. 1976. Geologic Map of the Snake River Canyon near Twin Falls, Idaho. Map MF-809.

Cummins, Arthur B. and Ivan A. Givens. 1973. SME Mining Engineering Handbook. Society of Mining Engineers of the American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc. New York.

Deaderick, Skip. 1989. Personal communication between Skip Deaderick, Billiton Minerals and Charles Condrat, Dames & Moore. June 14, 1989.

Drewes, Harold. 1967. Geology of the Connors Pass Quadrangle Schell Creek Range East-Central Nevada. U.S. Government Printing Office, Washington, 93 pp.

Dunn, Mike. 1989. Personal communication between Mike Dunn, Bureau of Mines, and Charles R. Condrat, Dames & Moore. September 24, 1990.

Fenneman, Nevin M. 1931. Physiography of the Western United States. McGraw-Hill Book Company, New York.

Fiero, Bill. 1986. Geology of the Great Basin. University of Nevada Press, Reno, Nevada. 197 pp.

Granger, Arthur E., Mendell M. Bell, George C. Simmons, and Florence Lee. 1957. Geology and Mineral Resources of Elko County, Nevada. University of Nevada-Reno, Nevada, Bulletin 54.

Hintze, Lehi F. 1988. Geologic History of Utah. Brigham Young University, Special Publication 7. 202 pp.

___. 1963. Geologic Map of Southwestern Utah. U.S. Geological Survey.

___. 1986a. Geologic Map of the Mormon Gap and Tweedy Wash Quadrangles, Millard County, Utah and Lincoln and White Pine Counties, Nevada. USGS Map MF-1872.

___. 1986b. Geologic Map, Conger Mountain Quad, Utah. USGS, Map MF-634.

Hope, Roger A. and Robert R. Coats. 1976. Preliminary Geologic Map of Elko County, Nevada. Nevada Bureau of Mines 76-779.

Hose, Richard K. and M. C. Blake, Jr. 1976. Geology and Mineral Resources of White Pine County, Nevada. MacKay School of Mines, University of Nevada-Reno. Bulletin 85.

Hose, Richard K. 1965. Geologic Map and Sections of the Conger Range SE Quadrangle and Adjacent Area, Confusion Range, Millard County, Utah. USGS Map I-435.

Jones, Richard B. and Keith G. Papke. 1984. Active Mines and Oil Fields in Nevada. University of Nevada-Reno, Map 84.

Kleinhampl, Frank J. and Joseph I. Ziony. 1984. Mineral Resources of Northern Nye County, Nevada. Prepared by the U.S. Geological Survey and the Nevada Bureau of Mines and Geology. MacKay School of Mines, University of Nevada, Reno. Bulletin 99B.

___. Ziony. 1985. Geology of Northern Nye County, Nevada. Prepared by the U.S. Geological Survey and the Nevada Bureau of Mines and Geology. MacKay School of Mines, University of Nevada, Reno. Bulletin 99A.

Lacey, Larry. 1990. Personal communication between Larry Lacey, U.S. Bureau of Land Management, and Charles R. Condrat, Dames & Moore. July 24, 1990.

Lindsey, David A., David R. Zimbelman, David Campbell, Joseph S. Duval, Kenneth L. Cook, Melvin H. Podwysocki, David W. Brickey, and Robert A. Yombrick. 1985. Mineral Resources of the Swasey Mountain and Howell Peak Wilderness Study Areas, Millard County, Utah. U.S. Geological Survey Bulletin 1749.

Longwell, C.R., Pampeyan, E.H., Bowyer, B., and R.J. Roberts. 1965. Geology and Mineral Deposits of Clark County, Nevada. Prepared by the U.S. Geological Survey and the Nevada Bureau of Mines and Geology. MacKay School of Mines, University of Nevada, Reno. Bulletin 62.

Malde, Harold E. and Howard A. Powers. 1972. Geologic Map of the Glenns Ferry-Hagerman Area, West-Central Snake River Plain, Idaho. USGS Map 1-696.

Malde, Harold E., Howard A. Powers and Charles H. Marshall. 1963. Reconnaissance Geologic Map of West-Central Snake River Plain, Idaho. USGS, Miscellaneous Geologic Investigations Map 1373.

Maley, Terry. 1987. Exploring Idaho Geology. Mineral Land Publications, 232 pp.

Morris, Hal T. 1978. Preliminary Geologic Map of Delta 2° Quadrangle, West-Central Utah. USGS Open-File Report 78-705, 9 pp.

Nakata, J.K., C.M. Wentworth, and M.N. Machette. 1982. Quaternary Fault Map of the Basin and Range and Rio Grande Rift Provinces, Western United States. USGS Open File Report 82-579, 1:500,000.

Nevada Bureau of Mines & Geology. 1990. The Nevada Mineral Industry 1990. Special Publication MI-1990.

___. 1991. Major Mines of Nevada - 1990. Special Publication II.

Oviatt, Charles G. 1989. Quaternary Geology of Part of the Sevier Desert, Millard County, Utah. Utah Geological and Mineral Survey, Utah Dept. of Natural Resources, Special Studies 70.
41 pp.

Peterson, James A. 1988. Eastern Great Basin and Snake River Downwarp, Geology and Petroleum Resources. Preliminary Report USGS Open-File Report 88-450-H.

Phipps, Helen. 1989. Twin Falls County Appraisal District. Personal communication between Helen Phipps, County Administrator, and Greg Gault, Dames & Moore. August 3, 1989.

Rember, W.C. and E.H. Bennett. 1979. Geologic map of the Twin Falls Quadrangle, Idaho. Idaho Bureau of Mines and Geology.

Robinson, Bill and Dan Netcher. 1990. Personal communication between Bill Robinson and Dan Netcher, U.S. Bureau of Land Management, and Charles R. Condrat, Dames & Moore. February 9, 1990.

Sack, Dorothy. 1988. Quaternary Geology - Tule Valley, West-Central Utah. Utah Geological and Mineral Survey Open-File Release 143. 59 pp.

Slemmons, D.B., J.I. Gimlett, A.E. Jones, R. Greenfelder, and J. Koenig. 1964. Earthquake Epicenter Map of Nevada. Nevada Bureau of Mines. Earthquake Epicenter Map 29.

Smith, Roscoe M. 1976. Mineral Resources of Elko County, Nevada. U.S. Geological Survey. Open-File Report 76-56.

Stewart, John H. 1980. Geology of Nevada: A Discussion to Accompany the Geologic Map of Nevada. Nevada Bureau of Mines and Geology (USGS), Special Publication 4. 136 pp.

Stewart, John H. and John E. Carlson. 1978. Geologic Map of Nevada. U.S. Geological Survey in Cooperation with the Nevada Bureau of Mines and Geology.

___. 1977. Million-Scale Geologic Map of Nevada. MacKay School of Mines, University of Nevada-Reno. Map 57.

Stokes, William L. 1989. Geology of Utah. Utah Museum of Natural History and Utah Geological and Mineral Survey. Occasional Paper No. 6. 280 pp.

Stover, C.W., B.G. Reagor and S.T. Algermissen. 1986a. Seismicity Map of the State of Utah. USGS Map MF-1856.

___. Algermissen. 1986b. Seismicity Map of the State of Idaho. USGS Map MF-1857.

Thenhaus, Paul C. 1980. Summary of Workshops Concerning Regional Seismic Source Zones of Parts of the Conterminous United States, Convened by the U.S. Geological Survey 1979-1980, Golden, Colorado. U.S. Geological Survey Circular 898.

Tingley, J.W. 1989. Mineral Resources of the Overton 30' by 60' Quadrangle. Nevada Bureau of Mines and Geology. Report 45.

Tschanz and E.H. Pampeyan. 1970. Geology and Mineral Deposits of Lincoln County, Nevada. USGS, MacKay School of Mines University of Nevada-Reno. 188 pp.

University of Nevada. 1988. The Nevada Mineral Industry. University of Nevada-Reno MacKay School of Mines, Bulletin 73. 54 pp.

USDI. 1989. The Mineral Industry of Idaho, Reprint from the 1981 Bureau of Mines Minerals Yearbook. U.S. Bureau of Mines. 13 pp.

___. 1986a. Draft Environmental Impact Statement: House Range Resource Area. U.S. Bureau of Land Management.

___. 1986b. Draft Environmental Impact Statement: Warm Springs Resource Area. U.S. Bureau of Land Management.

___. 1985. Energy and Mineral Resource Assessment. U.S. Bureau of Land Management Manual 3031. Reference Illustration No. 3.

___. 1982. The Geology and Mineral Resources Sections in Mineral and Water Resources of Idaho. Compiled by U.S. Geological Survey in 1964. Reprint 8 by Idaho Bureau of Mines and Geology, 253 pp.

___. 1969. Mineral and Water Resources of Utah, Bulletin 73. Compiled by U.S. Geological Survey in 1964. Reprinted in 1969 by Utah Geological and Mineralogical Survey.

___. 1964a. Map of Utah Mining Districts. Compiled by E.B. Heylmun. Provided by U.S. Bureau of Mines.

____. 1964b. Mineral and Water Resources of Nevada. Prepared by the U.S. Geological Survey and the Nevada Bureau of Mines. MacKay School of Mines, University of Nevada, Reno. Bulletin 65.

Weasma, Ted. 1990. Personal communication between Ted Weasma, U.S. Bureau of Land Management, and Charles R. Condrat, Dames & Moore. February 13, 1990.

White, Bill. 1990. Personal conversation with Bill White, U.S. Bureau of Mines, and Charles R. Condrat, Dames & Moore. September 19,1990.

Wyatt, Steve. 1990. Comments by Steve Wyatt, U.S. Forest Service, from review of the mineral resources section of the Preliminary Technical Report, to Charles R. Condrat, Dames & Moore. February 2, 1990.

Witkind, I. J. 1975. Preliminary Map Showing Known and Suspected Active Faults in Idaho. U.S. Geological Survey Open-File Report 75-278.

Paleontology

Amme, Brian. 1990. Written comments on review of impact assessment in Technical Report. October and April 1990.

Dames & Moore. 1983. Technical Report For The White Pine Power Project. Dames & Moore.

Ekdale, Tony. 1989. Personal communication between Tony Ekdale, University of Utah Geology Department and Charles Condrat, Dames & Moore. June 16, 1989.

Firby, James R. and Howard E. Schorn. 1983. Paleontological Inventory of the Elko Bureau of Land Management District. BLM Contract YA553-CT1-108. 640 pp.

Gillette, David. 1990. Personal communication between David Gillette, Utah Division of State History and Charles Condrat, Dames & Moore. February 22, 1990.

Hayden, Marsha. 1989. Locality Search for Paleontological Resources in the SWIP Study Area.

Hintze, Lehi F. 1988. Geologic History of Utah. Brigham Young University, Special Publication 7. 202 pp.

Kern River Gas Transmission Company. 1990. Kern River Pipeline Paleontologic Resource Assessment and Final Management Plan - Nevada Portion. Report prepared by Dames & Moore, September 1990.

Kowallis, B.J. and B.H. Everett. 1986. Sedimentary Environments of the Muddy Creek Formation near Mesquite, Nevada. Utah Geological Association Publication 15, p. 69-75.

Maley, Terry. 1987. Exploring Idaho Geology. Mineral Land Publications, 232 pp.

Miller, Susanne J. 1989a. Letter from Susanne Miller to Charles Condrat dated June 15, 1989 in regard to Paleontological Resources, Southwest Intertie Project (SWIP), Idaho. Idaho Museum of Natural History. 8 pp.

___. 1989. Paleontological resources, Southwest Intertie Transmission Project, Idaho. Idaho Museum of Natural History. 3 pp.

Miller, Wade E. and Samuel K. Webb. 1982. Intermountain Power Project (IPP) Phase II, Microwave Communications System Paleontological Resources Inventory and Significance Evaluation Final Report. Brigham Young University. 28 pp.

Reynolds, R.E. 1990. Paleontologic Resource Assessment, City of Mesquite (Nevada), 80-acre Land Transfer, Sewer System Improvement Parcel. San Bernadino County Museum, Relands, CA. December 1990.

Smith, Gerald R, Krystyna, Swirydczuk, Peter G. Kimmes, and Bruce H. Wilkinson. 1982. Fish Biostraigraphy of Late Miocene to Pleistocene Sediments of the Western Snake River Plain, Idaho, in Cenozoic Geology of Idaho. Editors Bill Bonnichsen and Roy M. Breckenridge. Idaho Bureau of Mines and Geology Bulletin 26, pp. 519-541.

State of Utah. n.d. Paper handout presenting list of criteria for paleontological sensitivity. Utah Division of State History.

Stokes, William L. 1989. Geology of Utah. Utah Museum of Natural History and Utah Geological and Mineral Survey. Occasional Paper No. 6. 280 pp.

USDI. 1985. Draft Management of Paleontological Resources. U.S. Bureau of Land Management.

Van Devender, T.R. and N.T. Tessman. 1975. Late Pleistocen Snapping Turtles (Chelydra Serpentina) From southern Nevada in Capeia No. 2, May 23, 1975, p. 249-253.

Weasma, Ted R. 1990. Personal communication between Ted Weasma, U.S. Bureau of Land Management and Charles Condrat, Dames & Moore. February 13, 1990.

___. 1989. Letter from Ted Weasma, U.S. Bureau of Land Management to Jim Norwick, Dames & Moore, regarding paleontological impacts along the proposed routes in Idaho. June 27, 1989.

Winterfeld, Gustav. 1991. Paleontological Resource Assessment, City of Mesquite, Nevada - Land Exchange. Dames & Moore, Bakersfield, CA. 1991.

Soils

Campsey, Lee. 1990. Personal communication between Lee Campsey, Soil Conservation Service, and Charles R. Condrat, Dames & Moore. August 10, 1990.

Chappell, Lorell. 1990. Meeting between Lorell Chappell, U.S. Bureau of Land Management, and Charles R. Condrat, Dames & Moore. February 8, 1990.

Imgard, Wayne. 1990. Meeting between Wayne Imgard, Soil Conservation Service, and Charles R. Condrat, Dames & Moore. February 9, 1990.

Kiracofe, Steve. 1990. Personal communication between Steve Kiracofe, U.S. Bureau of Land Management, and Charles R. Condrat, Dames & Moore. February 9, 1990.

Lato, Leon. 1991. Personal communication regarding prime farmland in Clark County, Nevada. Soil Conservation Service, Las Vegas District, December 19, 1991.

Merkler, Doug. 1990. Personal communication between Doug Merkler, Soil Conservation Service, and Charles R. Condrat, Dames & Moore. June 4, 1990.

USDA. 1989. Soil Erosion By Wind. Soil Conservation Service. Agriculture Information Bulletin Number 555.

___. 1987. Soil Erosion By Water. Soil Conservation Service. Agriculture Information Bulletin 513.

___. 1985. General Soil Map, Elko County, Northeast Part, Nevada. Soil Conservation Service.

___. 1983. National Soils Handbook. Soil Conservation Service.

___. 1984a. General Soil Map of Idaho. Soil Conservation Service.

___. 1984b. Preliminary Soil Survey of Warm Springs Area, Millard County, Utah. Soil Conservation Service, pp 226.

___. 1981. Soil Survey of Cassia County, Western Part. Soil Conservation Service.

____. 1980. Soil Survey of Virgin River Area, Nevada-Arizona, Parts of Clark and Lincoln Counties, Nevada and Part of Mohave County, Arizona. Soil Conservation Service.

___. 1979. General Soil Map, Jerome and Twin Fall Counties, Idaho. Soil Conservation Service.

___. 1977. Soil Survey of Delta Area, Part of Millard County. Soil Conservation Service and U.S. Bureau of Land Management. 77 pp.

___. 1976. General Soil Map for White Pine County, Nevada. Soil Conservation Service.

___. 1968. Soils Survey, Pahranagat-Penoyer Areas, Nevada. Soil Conservation Service.

___. n.d.(a) Preliminary Soil Survey of Elko County, Northeast Part. Soil Conservation Service.

___. n.d.(b) Preliminary Soil Survey of Gooding County, Idaho. Soil Conservation Service.

___. n.d.(c) Preliminary Soil Survey of Jerome County, Idaho. Soil Conservation Service.

___. n.d.(d) Preliminary Soil Survey of Twin Falls County, Idaho. Soil Conservation Service.

___. n.d.(e) Preliminary Soil Survey of White Pine County. Soil Conservation Service.

___. n.d.(f) Unpublished General Soil Map, Wood River Soil Survey, Idaho. Soil Conservation Service.

USDI. 1982. Soil Descriptions for the House Range. U.S. Bureau of Land Management.

___. n.d.(a) Preliminary Soil Survey of Eastern White Pine County. U.S. Bureau of Land Management.

___. n.d.(b) Preliminary Soil Survey of Humboldt National Forest. U. S. Forest Service.

Wilson, et al. 1975. Soils of Utah. Agricultural Experimental Station Bulletin 492. Utah State University, Logan, Utah.

Water Resources

Bybee, Cris A. 1990. Personal communication between Cris Ann Bybee, soil scientist for the U.S. Bureau of Land Management and Charles Condrat, Dames & Moore. February 9, 1990.

FEMA. 1985. Flood Insurance Rate Map (FIRM), Gooding County, Idaho. National Flood Insurance Program.

___. 1983a. Flood Insurance Rate Map (FIRM), Cassia County, Idaho. National Flood Insurance Program.

___. 1983b. Flood Insurance Rate Map (FIRM), White Pine County, Nevada. National Flood Insurance Program.

___. 1983c. Flood Insurance Study, Gooding County, Idaho. National Flood Insurance Program.

___. 1983d. Floodway Flood Boundary and Floodway Map, Elko County, Nevada. National Flood Insurance Program.

Harenberg, W.A., M.L. Jones, I. O'Dell and S.C. Cordes. 1988. Water Resources Data, Idaho. USGS Water-Data ID-88-1, 669 pp.

Harrill, James R., Joseph S. Gates and James M. Thomas. 1988. Major Ground-Water Flow Systems in the Great Basin Region of Nevada, Utah, and Adjacent States. USGS, ATLAS HA-694-C.

Members of the Water Resources Work Group Under Direction of Great Basin Staff. 1971. Great Basin Region Comprehensive Framework Study, Appendix. Great Basin Staff.

Mundorff, M. J., E.G. Crosthwaite and Charbot Kilburn. 1964. Ground Water for Irrigation in the Snake River Basin in Idaho. U.S. Bureau of Reclamation, 224 pp.

Pupacko, A., R.J. LaCamera, M.M. Riek and J.R. Swartwood. 1988. Water Resources Data. USGS Water-Data Report NV-88-1, 265 pp.

ReMillard, M.D., L.R. Herbert, G.W. Sandberg and G.A. Birdwell. 1988. Water Resources Data-Utah-Water Year 1988. USGS, 364 pp.

State of Idaho, Water Quality Standards and Wastewater Treatment Requirements. 01.2001 through 01.2150.

State of Nevada. 1988. Water Quality Standards for the State of Nevada. 445.070 through 445.241.

State of Utah, Department of Health. 1988. Wastewater Disposal Regulations Part II Standards of Quality for Waters of the State. Utah Water Pollution Control Committee, 50 pp.

Stephens, Jerry C. 1977. Hydrologic Reconnaissance of the Tule Valley Drainage Basin, Juab and Millard Counties, Utah. Technical Publication No. 56. USGS.

Thomas, James M. and James L. Mason. 1986. Ground-Water Levels in the Great Basin Region of Nevada, Utah, and Adjacent States. USGS, ATLAS HA-694-B.

USDA. 1964. Mineral and Water Resources of Nevada. Prepared by the U.S. Geological Survey and the Nevada Bureau of Mines. MacKay School of Mines, University of Nevada, Reno. Bulletin 65.

Wilberg, Dale E. and Bernard J. Stolp. 1985. Physical Characteristics and Chemical Quality of Selected Springs in Parts of Juab, Millard, Tooele, and Utah Counties, Utah. U.S. Bureau of Land Management, 39 pp.

ELECTRICAL, BIOLOGICAL, HEALTH AND SAFETY EFFECTS

Ahlbom, A. et al. (1987): Biological effects of power line fields. New York State Power Lines Project Scientific Advisory Panel Final Report, 1 July 1987.

Banks, RS (1986): Regulation of Overhead Power Transmission Line Electric and Magnetic Fields in the United States. Proceedings of International Utility Symposium, Toronto, Ontario, Canada, September 16-19, 1986.

BNRC (1983): Montana Board of Natural Resources and Conservation. In the matter of the Bonneville Power Administration proposed construction of 500-kV transmission line, Case No. 883-2, decided May 6, 1983.

Bowman, JD; Garabrant, DH; Sobel, E; Peters, JM (1988): Exposures to extremely low frequency (ELF) electromagnetic fields in occupations with elevated leukemia rates. Appl. Ind. Hyg. 3(6, June), 189-194.

BPA (undated): "Corona and Field Effects" Computer Program (public domain software). Bonneville Power Administration, P.O. Box 491-ELE, Vancouver, Washington, 98666.

Bracken, TD (1987): Audible noise from high voltage transmission facilities. A briefing paper prepared for State of Florida Department of Environmental Regulation. (DER Contract No. SP122) State of Florida Department of Environmental Regulation.

Bracken, TD (1988): Power-frequency electric and magnetic fields in the environment. In Proceedings of EPRI Utility Seminar on Power Frequency Electric and Magnetic Field Exposure Assessment. Colorado Springs, Colorado., October 12-14, 1988. Electric Power Research Institute, Palo Alto, California.

Chartier, VL (1983): Empirical expressions for calculating high voltage transmission corona phemonena, First Annual Seminar Technical Career Program for Professional Engineers. Bonneville Power Administration, Portland, Oregon. April 1983, 75-82.

Chartier, VL; Stearns, RD (1981): Formulas for Predicting audible noise from overhead high voltage AC and DC lines. IEEE Trans. on Power App. and Sys. PAS-100(No. 1, January 1981), 121-129.

Dabkowski, J; Taflove, A (1979): Prediction method for buried pipeline voltages due to 60 Hz AC inductive coupling. Part II: Field test verification. IEEE Trans. on Power App. and Sys. PAS-98, 788-794.

Deadman, JE; Camus, M; Armstrong, BG; Heroux, P; Cyr, D; Plante, M; Theriault, G (1988): Occupational and residential 60-Hz electromagnetic fields and high frequency electric transients: exposure assessment using a new dosimeter. American Industrial Hyg. Assoc. J. 49(8, August), 409-419.

Deno, DW; Zaffanella, L (1982): Field effects of overhead transmission lines and stations. In: Transmission Line Reference Book 345 kV and Above, Second Edition. Electric Power Research Institute, Palo Alto, California.

EMF Issue Development Briefing. 1991 Year in Review. Edison Electric Institute.

EPA (1973): Public health and welfare criteria for noise. U.S. Environmental Protection Agency, Washington, D.C. (No. 500/9-73-002, July 27, 1973).

EPA (1974): Information on levels of environmental noise requisite to protect public health and welfare with an adequate margin of safety. U.S. Environmental Protection Agency, Washington, D.C. (No. PB-239 429).

EPA (1978): Protective noise levels. Condensed version of EPA levels document. (No. PB82-138827) U.S Environmental Protection Agency, Washington, DC.

Federal Communications Commission (1988): Federal Communications Commission Rules and Regulations. 10-1-88 ed. Vol. II part 15. 47 CFR, Ch. 1.

Florida Department of Environmental Regulation (1989): Electric and magnetic fields. Chapter 17-274. Department of Environmental Regulation Rules, March 1989.

Florig, HK (1986): Population exposure to power-frequency fields. PhD. Dissertation 1986. Carnegie-Mellon University, Pittsburgh, Pennsylvania.

Florig, KH; Hoburg, JF (1988): Electric and magnetic field exposure associated with electric blankets. Project Resume. Contractor's review. U.S. Department of Energy/Electric Power Research Institute.

Gauger, J (1985): Household appliance magnetic field survey. IEEE Trans. on Power App. and Sys. PAS-104, 2436-2445.

Glasgow, AR; Carstensen,EL (1980): The shock record for 500 and 750 kV transmission lines in North America. IEEE Trans. on Power App. and Sys. PAS-100, 559-562.

Harvey, SM (1983): Analysis of operator exposure to electric fields from video display units. Ontario Research Division, Toronto, Ontario, Canada. (Report No. 83-503-K).

Heroux, P (1987): 60-Hz electric and magnetic fields generated by a distribution network. Bioelectromagnetics 8, 135-148.

IEEE (1978): Electric and magnetic field coupling from high voltage AC power transmission lines -- classification of short-term effects on people. IEEE Trans. on Power App. and Sys. PAS-97, 2243-2252.

IEEE (1987): IEEE standard procedures for measurement of power frequency electric and magnetic fields from AC power lines. Institute of Electrical and Electronics Engineers, Inc., ANSI/IEEE Std. 644-1987, New York.

IEEE Committee Report (1971): Radio noise design guide for high voltage transmission lines. IEEE Trans. on Power App. and Sys. PAS-90(No. 2, March/April), 833-842.

IEEE Committee Report (1982): A comparison of methods for calculating audible noise of high voltage transmission lines. IEEE Trans. on Power App. and Sys. PAS-101(No. 10, October), 4090-4099.

ITT Research Institute (1984): Representative electromagnetic field intensities near the Clam Lake (WI) and Republic (MI) ELF Facilities. Report prepared for Naval Electronics Systems Command, PME 110 E Washington, D.C. 20360. ITT Research Institute, Chicago, IL. (under contract N00039-84-C0070)

Jaffa, KC; Stewart, JB (1981): Magnetic field induction from overhead transmission and distribution power lines on buried irrigation pipelines. IEEE Transmission Power App. Syst. PAS-100, 990-1000.

Jamison, V (1986): Standard setting in the United States: the view from Montana. Proceedings of the International Utility Symposium, Toronto, Ontario, Canada, September 17-19, 1986.

Kaune, WT; Stevens, RG; Callahan, NJ; Severson, RK; Thomas, DB (1987): Residential magnetic and electric fields measured over 24-H periods. (Final Report, Power Lines Project 21082-18) Health Research, Inc., Albany, New York. 109 pages. (Prepared by Battelle, Pacific Northwest Laboratories)

Keesey, JC; Letcher, FS (1969): Minimum thresholds for physiological responses to flow of alternating electric current through the human body at power-transmission frequencies. (Report No. 1) Naval Medical Research Institute, Project MR 005.08-0030B, Bethesda, Maryland.

Lee, Jack M; Chartier, Vernon L; Hartmann, David P; Lee, Gerald E; Pierce, Katherine S; Shon, Fay L; Stearns, Rick D; Zeckmeister, Michael T (1989): Electrical and biological effects of transmission lines: a review. Bonneville Power Administration, U. S. Department of Energy, Portland, Oregon. (Report DOE/BPA-945)

Loftness, MO (1977): A practical handbook for the location, prevention and correction of television interference from overhead power lines. Bonneville Power Administration, Portland, Oregon. (March 1977)

Loftness, MO (1980): A practical handbook for the correction of radio interference from overhead powerlines and facilities. Bonneville Power Administration, Portland, OR. (May 1980)

Loftness, MO; Chartier, VL; Reiner, GL (1981): EMI correction techniques for transmission line corona. Proceedings of the 1981 IEEE International Symposium on Electromagnetic Compatibility, Boulder, Colorado. (August 18-20, 1981, pp 351-361)

Minnesota Environmental Quality Board (MEQB) (1977): Public health and safety effects of high voltage overhead transmission lines - An analysis for the Minnesota Environmental Quality Board by Banks, R.S., Kanniainen, C. M. and Clark, R. D. (Report no. HRP-0024077) MEQB, St. Paul, Minnesota.

NESC (National Electrical Safety Code) (1990): National Electrical Safety Code. Institute of Electrical and Electronics Engineers, Inc., New York.

New Jersey Commission on Radiation Protection (NJDEP) (1981): News Release: Guidelines for High Voltage Transmission Lines Adopted. New Jersey State Department of Environment Protection, Trenton, New Jersey.

New York State Public Service Commission (NYPSC) (1978a): Opinion No. 78-13: Cases 16529 and 26559 -- Common Record Hearings on Health and Safety of Extra High Voltage Transmission Lines. Opinion and other determining health and safety issues, imposing conditions, and authorizing, in case 26529, Operation pursuant to those conditions.

New York State Public Service Commission (NYPSC) (1978b): New York Public Service Commission, Order granting in part and denying in part petitions for rehearing and clarifying Opinion No. 78-13, issued October 13, 1978.

Oregon (1980): Oregon Administrative Rules Chapter 345, Division 80. Energy Facility Siting Council standards relating to public health and safety, 934-80-055.

Reilly, JP (1979): Electric field induction on long objects -- a methodology for transmission line impact studies. IEEE Trans. on Power App. and Sys. PAS-98, 1841-1852.

Savitz, DA (1987): Case-control study of childhood cancer and residential exposure to electric and magnetic fields. Final report to the New York State Department of Health Power Lines Project, 1987.

Sheppard, AR; Eisenbaum, M (1977): Biological effects of electric and magnetic fields of extremely low frequency. New York University Press, New York.

Silva, M; Hummon, N; Rutter, D; Hooper, C (1988): Power frequency magnetic fields in the home. IEEE paper No. 88 WM 101-8. Presented at IEEE Power Engineering Society 1988 Winter Meeting, New York.

Stopps, GJ; Janischewskyj, W (1979): Epidemiological study of workers maintaining HV equipment and transmission lines in Ontario. (Canadian Electrical Association Research Report) Canadian Electrical Association, Montreal.

Taflove, A; Dabkowski, J (1979): Prediction method for buried pipeline voltages due to 60 Hz AC inductive coupling. Part I: Analysis. IEEE Trans. on Power App. and Sys. PAS-98, 780-787.

TDHS Report (1989): EMF Rule becomes law; Hillsborough County Commission Challenges. Transmission/Distribution Health & Safety Report 7(9, 31 March), 1-3.

TDHS Report (1990): Updates: New York. Transmission/Distribution Health & Safety Report 8 (7,31 August), 4.

HEALTH ISSUES

Adolphe, M; Friese, V; Portet, R; Cabanes, J. A study of the effect of a low intensity magnetic field on the proliferation of several models of cell cultures. [Etude de L'effet d'un Champ Magnétique de Faible Intensité sur la Prolifération de Plusieurs Modeles de Cellules en Culture.]. C.R. Soc. Biol. 181:282-286, 1987.

Asanova, TP; Rakov, AI. The state of persons working in electrical fields of outdoor 400- and 500-kV switchyards. Gig. Tr. Prof. Zabol. (Russian). 10:50-52, 1966.

Baroncelli, P; Battisti, S; Chuccucci, A; Comba, P; Grandolfo, M; Serio, A; Vecchia, P. A health examination of railway high-voltage substation workers exposed to ELF electromagnetic fields. American Journal of Industrial Medicine. 10:45-55, 1986.

Basu, PK. Biological effects of extremely low frequency electric and magnetic fields on the ocular tissues: An in vitro study. New York State Power Lines Project: Albany, New York; 1987.

Batkin, S; Tabrah, FL. Effects of alternating magnetic field (12 gauss) on transplanted neuroblastoma. Research Communications in Chemical Pathology and Pharmacology. 16: 351-362, February 1977.

Bauchinger, M; Hauf, R; Schmid, E; Dresp, J. Analysis of structural chromosome changes and SCE after occupational long-term exposure to electric and magnetic fields from 380 kV-systems. Radiation and Environmental Biophysics. 19:235- 238, 1981.

Benz, RD; Carsten, AL; Baum, JW; Kuehner, AV. Mutagenicity and toxicity of 60 Hz magnetic and electric fields. New York State Power Lines Project: Albany, New York; 1987.

Berry, G; Newhouse ML; Antonis, P. Combined effects of asbestos and smoking on mortality from lung cancer and mesothelioma in factory workers. British Journal Ind. Medicine. 42:12-18, 1985.

Bourgsdorf, MF. Roundtable on UHV feasibility, how the advancement of knowledge has modified the technical- economical feasibility forecasts. Electra. 73:27-42, 1980.

Bowman, JD; Garabrant, DH; Sobel, E; Peters, JM. Exposures to extremely low frequency (ELF) electromagnetic fields in occupations with elevated leukemia rates. Journal of Applied Industrial Hygiene. 3:189-194, 1988.

Brinkmann, K; Buntenkötter, S; Zittlau, E; Zwingelberg, R; Reinhard, HJ. A teratological study on rats exposed to 50-Hz magnetic field. 10th Annual Meeting of the Bioelectromagnetics Society. Stamford, Connecticut, June 19-23, 1988. 1-9, 1988.

Broadbent, D; Broadbent, M; Male, J; Jones, M. Health of workers exposed to electric fields. British Journal of Industrial Medicine. 42:75-84, 1985.

Bunin, GR; Ward, E; Kramer, S; Rhee, CA; Meadows, AT. Neuroblastoma and parental occupation. American Journal of Epidemiology. 131:776-780, 1990.

Buntenkotter, S; Brinkmann, K; Zittlau, E; Zwingelberg, R; Reinhard, H-J; Mevissen, M. An oncological study with DMBA on rats exposed to 50 Hz magnetic fields. 12th Annual Meeting of the Bioelectromagnetics Society, June 10-14, 1990, San Antonio, Texas, 1990.

Byus, CV; Pieper, SE; Adey, R. The effects of low-energy 60-Hz environmental electromagnetic fields upon the growth-related enzyme ornithine decarboxylase. Carcinogenesis. 8: 1385-1389, 1987.

California Public Utilities Commission/California Department of Health Services. Potential health effects of electric and electric and magnetic fields from electric power facilities. September 15, 1989.

Chandra, S; Stefani, S. Effect of constant and alternating magnetic fields on tumor cells in vitro and in vivo, In: Biological effects on extremely low frequency electromagnetic fields. Proceedings of the Eighteenth Annual Hanford Life Sciences Symposium, October 16-18, 1978, Richland, WA, Phillips, RD; Gillis, MF; Kaune, WT; Mahlum, DD (eds)., Washington, DC: DOE Technical Information Center; 1979.

Cohen, MM. In vitro genetic effects of electromagnetic fields. New York State Power Lines Project: Albany, New York; 1987.

Coleman, M; Bell, C; Taylor, H-L; Thornton-Jones, H. Leukaemia and electromagnetic fields: A case-control study. IEE International Conference on Electric and Magnetic Fields in Medicine and Biology. December 4-5, 1985. Short Run Press Ltd., Exeter, Great Britain, 122-130, 1985.

Coleman, MP; Bell, CMJ; Taylor, H-L; Primic-Zakelj, M. Leukaemia and residence near electricity transmission equipment: A case-control study. British Journal of Cancer. 60:793-798, 1989.

Coleman, MP; Bell, J. Leukemia and extremely low frequency electromagnetic fields: A case-control study. International Epidemiological Association, XI Scientific Meeting, Helsinki, Finland, August 8-13, 1987.

D'Ambrosio, G; Massa, R; Di Berardino, D; Lioi, MB; Scaglione, A; Scarfi, MR. Chromosomal aberrations in bovine lymphocytes exposed to 50-Hz electric currents. Journal of Bioelectricity. 7:239-245, 1988-89.

D'Ambrosio, GD; Scaglione, A; Di Berardino, D; Lioi, MB; Iannuzzi, L; Mostacciuolo, E; Scarfi, MR. Chromosomal aberrations induced by ELF electric fields. Journal of Bioelectricity. 4:279-284, 1985.

Demers, PA; Thomas, DB; Rosenblatt, KA; Jimenez, LM; McTiernan, A; Stalsberg, H; Sternhagen, A; Thompson, WD; Curnen, M; Satariano, A; Austin, DF; Isacson, P; Greenberg, RS; Key, C; Kolonel, L; West, D. Occupational exposure to electromagnetic radiation and breast cancer in males. Society for Epidemiological Research 23rd Annual Meeting, Snowbird, Utah; June, 1990.

Department of Environmental Regulation. Electrical facilities; electric and magnetic fields; intent, findings, basis of standards and research needs. Chapter 17-274, 20 pgs.

Diamond, L. Tumor promoters and cell transformation. Pharmac. Ther. 26:89-145, 1984.

Dlugosz, L; Vena, J et al. Congenital malformations and periconceptional use of electric blankets and heated waterbeds: A register-based case-control study. Snowbird Ski and Summer Resort Utah, 23rd Annual Meeting June 12-15, 1990. Society for Epidemiological Research, 1990.

Dowman, R; Wolpaw, JR; Seegal, RF; Satya-Murti, S. Chronic exposure of primates to 60-Hz electric and magnetic fields: III. Neurophysiologic effects. Bioelectromagnetics. 10: 303-317, 1989.

El Nahas, SM; Oraby, HA. Micronuclei formation in somatic cells of mice exposed to 50-Hz electric fields. Environmental and Molecular Mutagenesis. 13:107-111, 1989.

Fam, WZ. Biological effects of 60-Hz magnetic field on mice. IEEE Transactions on Magnetics. MAG-17:1510-1413, July, 1981.

Fam, WZ. Long-term biological effects of very intense 60- Hz electric fields on mice. IEEE Transactions on Biomedical Engineering. BME-27:376-381, July, 1980.

Fam, Wagih Z; Mikhail, Eva L. Biological effects in mice exposed to a 25-mT, 60-Hz magnetic field. 12th Annual Meeting of the Bioelectromagnetic Society, San Antonio, Texas, June 10-14, 1990.

Federal Register (FR). Environmental Protection Agency, "Guidelines for carcinogen risk assessment," Federal Register, 51(185):33995, 1986.

Fotopoulos, SS; Cook, MR; Gerkovich, MM; Koontz, E; Graham, C; Cohen, HD. 60-Hz Field Effects on Human Neuroregulatory, Immunologic, Hematologic and Target Organ Activity, In: Interaction of Biological Systems with Static and ELF Electric and Magnetic Fields. Presented at Twenty-third Hanford Life Sciences Symposium, October 2-4, 1984, Richland, WA, Anderson, LE; Kelman, BJ; Weigel, RJ (eds)., Richland, Washington: Pacific Northwest Laboratory; 455-469: 1987.

Frazier, ME; Samuel, JE; Kaune WT. Viabilities and mutation frequencies of CHO-K1 cells following exposure to 60-Hz electric fields, In: Interaction of Biological Systems with Static and ELF Electric and Magnetic Fields. Presented at Twenty-third Hanford Life Sciences Symposium, October 2-4, 1984., Anderson, LE; Kelman, BJ; Weigel, RJ (eds)., Richland, Washington: Pacific Northwest Laboratory; 255-267: 1987.

Free, MJ; Kaune, WT; Phillips, RD; Cheng, H-C. Endocrinological effects of strong 60-Hz electric fields on rats. Bioelectromagnetics. 2:105-121, 1981.

Fulton, JP; Cobb, S; Preble, L; Leon, L; Forman, E. Electrical wiring configurations and childhood leukemia in Rhode Island. American Journal of Epidemiology. 111:292-296, 1980.

Gamberale, F; Olson, BA; Eneroth, P; Lindh, T; Wennberg, A. Acute effects of ELF electromagnetic fields: A field study of linesmen working with 400 kV powerlines. British Journal of Industrial Medicine. 46:729-737, 1989.

Gauger, JR. Household appliance magnetic field survey. IEEE Transactions on Power and Systems. PAS-104:2436-2444, September 1985.

Goodman, R; Henderson, AS. Exposure of salivary gland cells to low-frequency electromagnetic fields alters polypeptide synthesis. Proceedings of the National Academy of Sciences, USA. 85:3928-3932, June, 1988.

Goodman, R; Henderson, AS. Sine waves enhance cellular transcription. Bioelectromagnetics. 7:23-29, 1986.

Goodman, R; Wei, L-X; Xu, J-C; Henderson, A. Exposure of human cells to low-frequency electromagnetic fields results in quantitative changes in transcripts. Biochimica et Biophysica Acta. 1009:216-220, 1989a.

Goodman, R; Wei, L-H; Henderson, A. Induction of the expression of C-MYC following exposure of cultured cells to low frequency electromagnetic fields. Transactions of the Seventh Annual Meeting of the Bioelectrical Repair and Growth Society, Toronto, Ontario, Canada, October 11-14, 1987.

Goodman, R; Wei, L-X Xu, J-C; Henderson, A. Relationship of transcript quantity to signal amplitudes. Bioelectromagnetics Society, 1989b.

Goodman, R; Wei, L-X; Xu, J-C; Henderson, A. Transcriptional and translational patterns in cells exposed to low frequency electromagnetic signals. Transactions of the Eighth Annual Meeting of the Bioelectrical Repair and Growth Society. Washington, DC, p. 4, 1988.

Graham, C; Cohen, HD. Influence of 60 Hz fields on human behavior physiology biochemistry. New York State Power Lines Project: Albany, New York; 1987.

Graham, C; Cohen, HD; Cook, MR. U.S. Department of Energy. Immunological and biochemical effects of 60-Hz electric and magnetic fields in humans. Final Report. Midwest Research Institute: Kansas City, Missouri; January 30, 1990. Contract No.DE-FC01-84-CE-76246; MRI Project No.RA-338-C.

Hammond, E; Selikoff, I; Seidman, H. Asbestos exposure, cigarette smoking, and death rates. Annals of the New York Academy of Medicine. 33:473-489, 1979.

HEW. Smoking and health: Report of the Advisory Committee to the Surgeon General of the Public Health Service. U.S. Department of Health, Education, and Welfare, Public Health Service, pp. 19-21, 1964.

Hill, AB. The environment and disease: Association or causation? Proceedings of the Royal Society of Medicine. 58: 295-300, 1965.

International Non-ionizing Radiation Committee of the International Radiation Protection Association (IRPA/INIRC). Interim guidelines on limits of exposure to 50/60 Hz electric and magnetic fields. Health Physics. 58:113-122, 1990.

Johnson, CC; Spitz, MR. Childhood nervous system tumours: An assessment of risk associated with paternal occupations involving use, repair or manufacture of electrical and electronic equipment. International Journal of Epidemiology. 18:756-762, 1989.

Juutilainen, J; Liimatainen, A. Mutation frequency in Salmonella exposed to weak 100-Hz magnetic fields. Hereditas. 104:145-147, 1986.

Kalter, H; Warkany, J. Congenital malformations. Etiologic factors and their role in prevention. The New England Journal of Medicine. 308:424-431, 1983.

Kaune, WT; Stevens, RG; Callahan, NJ; Severson, RK; Thomas, DB. Residential magnetic and electric fields. Bioelectromagnetics. 8:315-335, 1987b.

Kaune, WT; Stevens, RG; Callahan, NJ; Severson, RK; Thomas, DB. Residential magnetic and electric fields measured over a 24-H period. New York State Power Lines Project: Albany, New York; 1987.

Kavet, R; Silva, JM. An alternative hypothesis for association between distribution wiring configurations and cancer: Planning phase. Interim Report. Electric Power Research Institute (EPRI): Palo Alto, California; June, 1990.

Kavet, R; Silva, JM; Thornton, D. Magnetic field exposure assessment of adults in Maine. 12th Annual Meeting of the Bioelectromagnetics Society, June 10-14, 1990, San Antonio, Texas, 1990.

Kizer et al. California occupational mortality, 1979-1981. Health and Welfare Agency, Department of Health Services; March, 1987.

Knave, B; Gamberale, F; Bergstrom, EE; Birke, E; Iregren, A; Kolmodin, H; Wennberg, A. Long-term exposure to electric fields: A cross-sectional epidemiologic investigation of occupationally exposed workers in high-voltage substations. Scandinavian Journal of Work Environment & Health. 5:115- 125, 1979.

Korobkova, VP; Morozov, UA; Stolyarov, MD; Yakub, UA. Influence of the electric field in 500 and 750 kV switchyards on maintenance staff and means for its protection. International Conference on Large High Tension Electric Systems. CIGRE paper 23-06, 1972.

Langenbach, R; Tennant, RW; Barrett, JC. Tumor promotion: A discussion of current topics, available assay systems and research needs, In: Tumor Promoters: Biological Approaches for Mechanistic Studies and Assay Systems, Langengach, R.; et al (eds), New York: Raven Press; 441-448: 1988.

Le Bars, H; Andre, G; Pupin, F; Labie, C. The biological effects of electrical fields effects on rats, mice and guinea pigs (Translated from French). Recueil de Medecine Veterinaire. 159:823-837, 1983.

Le Bars, H; Parodi, A-L; Pupin, F; Cabanes, J. Effects of leukemic AKR mice exposure to an electric field. C.R. Acad. Sci. Paris. t. 306:143-145, 1988.

Leung, FC; Rommereim, DN; Stevens, RG; Wilson, BW; Buschbom, RL;Anderson, LE. Effects of electric fields on rat mammary tumor development induced by 7, 12-dimethylbenz(a)anthracene. Bioelectromagnetics Society Tenth Annual Meeting, Stamford, Connecticut, June 19-23, 1988. (Abstract)

Liboff, AR; Williams Jr, T; Strong, DM; Wistar, R. Time- varying magnetic fields, Effect on DNA synthesis. Science. 223:818-820, February 24, 1984.

Lin, RS; Dischinger, PC; Conde, J; Farrell, KP. Occupational exposure to electromagnetic fields and the occurrence of brain tumors. An analysis of possible associations. Journal of Occupational Medicine. 27:413-419, 1985.

Livingston, GK; Gandi, OP; Chatterjee, I; Witt, K; Roti, JL. Reproductive integrity of mammalian cells exposed to 60 Hz electromagnetic fields. New York State Power Lines Project: Albany, NY; 1987.

Lyle, DB; Ayotte, RD; Sheppard, AR; Adey, WR. Suppression of T-lymphocyte cytotoxicity following exposure to 60-Hz sinusoidal electric fields. Bioelectromagnetics. 9:303-313, 1988.

Maresh CM, Cook MR, Cohen HD, Graham C, and Gunn WS, Exercise testing in the evaluation of human responses to powerline frequency fields, Aviat. Space Environ. Med. 59:1139-1145, 1988.

Marino, AA; Becker, RO; Ullrich, B. The effect of continuous exposure to low frequency electric field on three generations of mice: A pilot study. Experientia. 15:p.565, 1976.

Marino, AA; Cullen, JM; Reichmanis, M; Becker, RO; Hart, FX. Sensitivity to change in electrical environment: A new bioelectric effect. American Journal of Physiology. 239:R424-R427, 1980.

Marino, AA; Reichmanis, M; Becker, RO; Ullrich, B; Cullen, JM. Power frequency electric field induces biological changes in successive generations of mice. Experientia. 36:309-311, 1980.

Matanoski, GM; Elliot, EA; Breysse, PN; Burnett, WS. Cancer incidence in New York Telephone workers. Poster presented at the Annual Revier of Research on Biological Effects of 50/60 Hz Electric and Magnetic Fields, Air Ions, and Ion Currents. Portland, Oregon, November 15, 1989. U.S. Department of Energy, Office of Energy Storage and Distribution, 1989. (DETAILS OF POSTER).

McDowall, ME. Mortality of persons resident in the vicinity of electricity transmission facilities. Br. J. Cancer. 53: 271-279, 1986.

McLean, J; Stuchly, MA; Mitchel, R; Wilkinson, D; Lecuyer, DW. Tumor promotion in the mouse skin by 60 HZ magnetic field. 12th Annual Meeting of the Bioelectromagnetics Society, June 10-14, 1990, San Antonio, Texas, 1990.

Michaelson, SM. Neuroendocrine aspects of ELF exposure. DOE/EPRI Contractor's Review Meeting on Biological effects from electric and magnetic fields, air ions, ion currents associated with high voltage transmission lines, Kansas City, Missouri, November 1-4, 1987.

Milham Jr, S. Mortality in workers exposed to electromagnetic fields. Environmental Health Perspective. 62:297-300, 1985.

Morris, JE. Immune and endocrine effects (Poster Presentation). EPRI Utility Seminar: Power-frequency Electric and Magnetic Field Laboratory Research. Delavan, Wisconsin, September 27-29, 1988. Electric Power Research Institute, Palo Alto, California, 1989.

Morris, JE; Phillips, RD. Effects of 60-Hz electric fields on specific humoral and cellular components of the immune system. Bioelectromagnetics. 3:341-347, 1982.

Morris, JE; Ragan, HA. Immunological studies with 60-Hz electric fields, In: Biological effects of extremely low frequency electromagnetic fields. Proceedings of the Eighteenth Annual Hanford Life Sciences Symposium, October 16-18, 1978, Richland, WA, Phillips, RD; Gillis, MR; Kaune, WT; Mahlum, DD (eds)., Washington, DC: DOE Technical Information Center; 326-334: 1979.

Myers, A; Cartwright, RA; Bonnell, JA; Male, JC; Cartwright, SC. Overhead power lines and childhood cancer. IEE International Conference on Electric and Magnetic Fields in Medicine and Biology. London, December 4-5, 1985. Short Run Press Ltd., Exeter, Great Britain, 126-130, 1985.

Nair, I; Morgan, MG; Florig, HK. Dept of Engineering and Public Policy, Carnegie Mellon Univ., Pittsburgh, Pennsylvania. Biological effects of power frequency electric and magnetic fields. Background paper. Prepared for the Office of Technology Assessment (OTA). May, 1989. OTA-BP-E-53.

Nasca, PC; Baptiste, MS; MacCubbin, PA; Metzer, BB; Carton, K; Greenwald, P; Armbrustmacher, VW; Earle, KM; Waldman, J. An epidemiological case-control study of central nervous system tumors in children and parental occupational exposures. American Journal of Epidemiology. 128:1256-65, 1988.

New York Public Service Commission. Notice of proposed policy, and request for comments. Cases 26529 and 26559; April 26, 1990.

Noda, M; Johnson, DE; Chiabrera, A; Rodan, GA. Effect of electric currents on DNA synthesis in rat osteosarcoma cells: Dependence on conditions that influence cell growth. Journal of Orthopaedic Research. 5:253-260, 1987.

Nordenson, I; Mild, KH; Nordstrom, S; Sweins, A; Birke, E. Clastogenic effects in human lymphocytes of power frequency electric fields: In vivo and in vitro studies. Radiation and Environmental Biophysics. 23:191-201, 1984.

Nordenson, J; Mild, KH; Ostman, U; Ljungberg, H. Chromosomal effects in lymphocytes of 400 kV substation workers. Radiation and Environmental Biophysics. 27:39-47, 1988.

Nowell, PC. Mechanisms of tumor progression. Cancer Research. 46:2203-2207, 1986.

O'Brien, TG; Simsiman, RC; Boutwell, RK. Induction of the polyamine-biosynthetic enzymes in mouse epidermis by tumor- promoting agents. Cancer Research. 35:1662-1670, 1975.

Oversight hearing before the Subcommittee on Water and Power Resources of the Committee on Interior and Insular Affairs House of Representatives. One Hundredth Congress. First Session on Health Effects of Transmission Lines. Serial No. 100-22. October 6, 1987, Washington, DC. 1988.

Pegg, AE. Polyamine metabolism and its importance in neoplastic growth and as a target for chemotherapy. Cancer Research. 48:759-774, 1988.

Pitot, HC; Beer, DG; Hendrich, S. Multistage carcinogenesis of the rat hepatocyte, In: Nongenotoxic mechanisms in carcinogenesis, Butterworth, BE; Slaga, TJ (eds)., Cold Spring Harbor, New York: Cold Spring Harbor Laboratory; 41-53: 1987.

Preston-Martin, S; Peters, JM; Yu, MC; Garabrant, DH; Bowman, JD. Myelogenous leukemia and electric blanket use. Bioelectromagnetics. 9:207-213, 1988.

Quinlan, WJ; Petrondas, D; Lebda, N; Pettit, S; Michaelson, SM. Neuroendocrine parameters in the rat exposed to 60-Hz electric fields. Bioelectromagnetics. 6:381-389, 1985.

Ragan, HA; Buschbon, RL; Pipes, MJ; Phillips, RD; Kaune, Wt. Hematologic and serum chemistry studies in rats exposed to 60-Hz electric fields. Bioelectromagnetics. 4:79-80, 1983.

Rannug, A; Holmberg, B; Mild, KH. Studies of 50 MHz alternating magnetic fields in a rat liver focibioassay. 12th Annual Meeting of the Bioelectromagnetics Society, June 10-14, 1990, San Antonio, Texas, 1990.

Reese, JA; Jostes, RF; Frazier, ME. Exposure of mammalian cells to 60-Hz magnetic or electric fields: Analysis for DNA single-strand breaks. Bioelectromagnetics. 9:237-247, 1988.

Reilly, JP. Electric and magnetic field coupling from high voltage AC power transmission lines - classification of short-term effects on people. IEEE Transactions on Power Apparatus and Systems. PAS-97:2243-2252, 1978.

Rodan, GA. Overhead power lines project. New York State Power Lines Project: Albany, NY; 1987.

Rommereim, DN; Kaune, WT; Anderson, LE; Sikov, MR. Rats reproduce and rear litters during chronic exposure to 150-kV/ m, 60-Hz electric fields. Bioelectromagnetics. 10:385-389, 1989.

Rommereim, DN; Kaune, WT; Buschbom, RL; Phillips, RD; Sikov, MR. Reproduction and development in rats chronologically exposed to 60-Hz electric fields. Bioelectromagnetics. 8: 243-258, 1987.

Rommereim, DN; Rommereim, RL; Buschbom, RL; Anderson, LE. Developmental toxicity study in rats exposed to 60-Hz horizontal magnetic fields. 12th Annual Meeting of the Bioelectromagnetics Society, San Antonio, Texas, June 10-14, 1990.

Rosenthal, M; Obe, G. Effects of 50-Hertz electromagnetic fields on proliferation and on chromosomal alterations in human peripheral lymphocytes untreated or pretreated with chemical mutagens. Mutation Research. 210:329-335, 1989.

Russell, DH. Ornithine decarboxylase as a biological and pharmacological tool. Pharmacology. 20:117-129, 1980.

Salzinger, K. Behavioral effects of ELF. New York State Power Lines Project: Albany, New York; 1987.

Savitz, DA. Case-control study of childhood cancer and residential exposure to electric and magnetic fields. New York State Power Lines Project: Albany, New York; 1987.

Savitz, DA; Calle, EC. Leukemia and occupational exposure to electromagnetic fields: Review of epidemiologic surveys. Journal of Occupational Medicine. 29:47-51, 1987.

Savitz, DA; John, EM; Kleckner, RC. Magnetic field exposure from electric appliances and childhood cancer. American Journal of Epidemiology. 131:763-773, 1990.

Savitz, DA; Wachtel, H; Barnes, FA; John, EM; Tvrdik, JG. Case-control study of childhood cancer and exposure to 60- hertz magnetic fields. American Journal of Epidemiology. 128:21-38, 1988.

Seegal, RF; Wolpaw, JR; Dowman, R. Chronic exposure of primates to 60-Hz electric and magnetic fields: II. Neurochemical effects. Bioelectromagnetics. 10:289-301, 1989.

Selikoff, I; Seidman, H; Hammond, E. Mortality effects of cigarette smoking among amosite asbestos factory workers. J. Nat. Can. Inst. 65:507-513, 1980.

Seto, YJ; Fox, FT; Lymangrover, JR; Dunlap, WP; Hsieh, ST. Chronic 60 Hz electric field exposure induced subtle bioeffects on serum chemistry. J. Environ. Sci. Health. A19: 865-885, 1984.

Seto, YJ; Majeau-Chargois, D; Lymangrover, JR; Dunlap, WP; Fox, FT; Hsieh, ST. Chronic 60-Hz electric field exposure- induced subtle bioeffects on hematology. Environmental Research. 39:143-152, 1986.

Severson, RK; Stevens, RG; Kaune, WT; Thomas, DB; Heuser, L; Davis, S; Sever, LE. Acute nonlymphocytic leukemia and residential exposure to power frequency magnetic fields. American Journal of Epidemiology. 128:10-20, 1988.

Sikov, MR; Montgomery, LD; Smith, LG; Phillips, RD. Studies on prenatal and postnatal development in rats exposed to 60- Hz electric fields. Bioelectromagnetics. 5:101-112, 1984.

Sikov, MR; Rommereim, DN; Beamer, JL; Buschbom, RL; Kaune, WT; Phillips, RD. Development studies of Hanford Miniature Swine exposed to 60-Hz electric fields. Bioelectromagnetics. 8:229-242, 1987.

Silva, JM; Kavet, R. Estimating Public Exposure to Power- Frequency Electric Fields., In: Interaction of Biological Systems with Static and ELF Electric and Magnetic Fields. Presented at Twenty-third Hanford Life Sciences Symposium, October 2-4, 1984.,

Anderson, LE; Kelman, BJ; Weigel, RJ (eds)., Richland, WA: Pacific Northwest Laboratory; 419-435: 1987.

Skowronski, WJ; Mullins, JM; Nardone, RM; McSherry, MK; Greene, JJ. Enhancement of ribosomal RNA gene transcription in HL-60 cells by extremely low frequency electromagnetic radiation. 29th Annual Meeting of the Journal of Cell Biology, Houston, Texas, November 5-9, 1989. The Journal of Cell Biology, 109:p. 40a, #204, 1989.

Spitz, MR; Johnson, CC. Neuroblastoma and paternal occupational. American Journal of Epidemology. 121:924-929, 1985.

Stern, F; Waxweiler, R; Beaumont, J; Lee, S; Rinsky, R; Zumwalde, R; Halperin, W; Bierbaum, P; Landrigan, P; Murray, W. A case-control study of leukemia at a naval nuclear shipyard. American Journal of Epidemiology. 123:980-992, 1986.

Stevens, RG. Epidemiological studies of cancer and residential exposure to electromagnetic fields. New York State Power Lines Project: Albany, New York; 1987.

Stopps, GJ; Janischewskyj, W; Alcock, VMD. University of Toronto. Epidemiological study of workers maintaining HV equipment and transmission lines in Ontario. Toronto Research Report. Canadian Electrical Association: Montreal, Canada; July 1979.

Thomas, TL; Stewart, PA; Stemhagen, A; Correa, P; Norman, SA; Bleecker, ML. Risk of astrocytic brain tumors associated with occupational chemical exposures. Scand. J. Work Environ. Health. 13:417-423, 1987.

Thomson, RAE; Michaelson, SM; Nguyen, QA. Influence of 60- hertz magnetic fields on leukemia. Bioelectromagnetics. 9: 149-158, 1988.

Tomenius, L. 50-Hz electromagnetic environment and the incidence of childhood tumors in Stockholm County. Bioelectromagnetics (Sweden). 7:191-207, 1986.

Tomenius, L; Hellstrom, L; Enander, B. Electrical constructions and 50 Hz magnetic field at the dwellings of tumour cases (0-18 years of age) in the county of stockholm. International Symposium of Occupational Health and Safety in Mining and Tunnelling. Prague, June 21-25, 1982. 101, (abstract).

U.S. Environmental Protection Agency. Evaluation of the potential carcinogenicity of electromagnetic fields. Workshop Review Draft. U.S. Environmental Protection Agency: Washington, D.C.; June, 1990.

Vena, JE; Graham, S; Hellman, R; Swanson, M; Brasure, J. Use of electric blankets and risk of postmenopausal breast cancer. Society for Epidemiological Research 23rd Annual Meeting, Snowbird, Utah; June, 1990.

Verreault, R; Weiss, NS; Hollenbach, KA; Strader, CH; Daling, JR. Use of electric blankets and risk of testicular cancer. American Journal of Epidemiology. 131:759-762, 1990.

Weigel, RJ; Jaffe, RA; Lundstrom, DL; Forsythe, WC; Anderson, LE. Stimulation of cutaneous mechanoreceptors by 60-hz electric fields. Bioelectromagnetics. 8:337-350, 1987.

Wertheimer, N; Leeper, E. Adult cancer related to electrical wires near the home. International Journal of Epidemiology. 11:345-355, 1982.

Wertheimer, N; Leeper, E. Electrical wiring configurations and childhood cancer. American Journal of Epidemiology. 109: 273-284, 1979.

Wertheimer, N; Leeper, E. Magnetic field exposure related to cancer subtypes., In: Annals of the New York Academy of Sciences, Sterrett, FA (ed), pp. 43-54, 1987.

Wertheimer, N; Leeper E. Possible effects of electric blankets and heated waterbeds on fetal development. Bioelectromagnetics. 7:13-22, 1986.

Wertheimer, N; Leeper, E. Re: Acute nonlymphocytic leukemia and residential exposure to power-frequency magnetic fields. [Letters to the Editor]. American Journal of Epidemiology. 130:423-427, 1989a.

Whitson, GL; Carrier, WL; Francis, AA; Shih, CC; Georghiou, S; Regan, JD. Effects of extremely low frequency (ELF) electric fields on cell growth and DNA repair in human skin fibroblasts. Cell Tissue Kinetics. 19:39-47, 1986.

Wilkins III J.R.; Hundley, V D. Paternal occupational exposure to electromagnetic fields and neuroblastoma in offspring. American Journal of Epidemiology. 131:955-1008, June 1990.

Wilson, BW. Chronic exposure to ELF fields may induce depression. Bioelectromagnetics. 9:195-205, 1988.

Wilson, BW; Anderson, LE; Hilton, DI; Phillips, RD. Chronic exposure to 60-Hz electric fields: Effects on pineal function in the rat. Bioelectromagnetics. 2:371-380, 1981.

Wilson, BW; Anderson, LE; Hilton, DI; Phillips, RD. Erratum: Chronic exposure to 60-Hz electric fields: Effects on pineal function in the rat. Bioelectromagnetics. 4:293, 1983.

Wilson, BW; Chess, EK; Anderson, LE. 60-Hz electric-field effects on pineal melatonin rhythms: Time course for onset and recovery. Bioelectromagnetics. 7:239-242, 1986.

Wilson, BW; Wright, CW; Morris, J; Stevens, RG; Anderson, LE. Domestic ELF field exposure and pineal gland function. Bioelectromagnetics Society Tenth Annual Meeting, Stamford, CT, June 19-23, 1988. (Abstract)

Wolpaw, JR; Seegal, RF; Dowman, R. Chronic exposure of primates to 60-Hz electric and magnetic fields: I. Exposure system and measurements of general health and performance. Bioelectromagnetics. 10:277-288, 1989.

World Health Organization. Environmental Health Criteria 69: Magnetic Fields. Geneva, Switzerland: WHO Publications; 1987.

Wu, VS; Donato, NJ; Byus, CV. Growth state-dependent alterations in the ability of 12-O-Tetradecanoylphorbol-13- acetate of increase ornithine decarboxylase activity in reuber H35 hepatoma cells. Cancer Research. 41:3384-3391, 1981.

Yamasaki, H. Multistage carcinogeneisis: Implications for risk estimation. Cancer and Metastasis Reviews. 7:5-18, 1988.

LAND USE

Allen, Stan et al. 1986. Pacific Northwest Rivers Study - Idaho.

Dames & Moore. April 1989. Southwest Intertie Project Transmission Line Regional Environmental Report.

Campsey, Lee. 1990. Personal conversation between Lee Campsey, Soil Conservation Service and Greg Gault, Dames & Moore. August 1990.

Elko County Comprehensive Plan. 1971.

Idaho Department of Fish and Game. 1986. Wildlife Management Area Plan, 1986-1990.

Idaho Department of Parks and Recreation. 1983. Idaho Outdoor Recreation Plan (SCORP).

Idaho Department of Parks and Recreation. 1984. Idaho Rivers Inventory.

Idaho Department of Parks and Recreation and University of Idaho Department of Wildland Recreation Management. 1983. Floats and Floaters.

Idaho Department of Parks and Recreation and University of Idaho Department of Wildland Recreation Management. 1983. Idaho River Study.

Idaho Department of Parks and Recreation. 1984. Idaho Rivers Inventory.

___. 1983. Idaho Outdoor Recreation Plan (SCORP).

Idaho Department of Parks and Recreation and University of Idaho Department of Wildland Recreation Management. 1983. Floats and Floaters.

___. 1983. Idaho River Study.

Michael Clayton & Associates. 1986. Western Regional Corridor Study.

Nevada Department of Conservation and Natural Resources. 1987. Recreation in Nevada (SCORP).

Rajala, Karen. 1990. Personal conversation between Karen Rajala, White Pine Power Project and Greg Gault, Dames & Moore. 1990

Twin Falls County Comprehensive Plan. 1973.

USDI. 1989. Twin Falls Land Use Decisions Summary and Rangeland Program Summary. Bureau of Land Management.

White Pine County Comprehensive Plan. 1970.

PURPOSE AND NEED

Bonneville Power Administration. Northwest Power Planning Council. August 1989.

California Energy Commission. 1990. Electricity Report. P106-90-002. October.

California Energy Markets. November 2, 1990. No. 79, Pg. 9.

Comments on California Energy Commission Transmission System Evaluation Report of August 1989.

Crowell, Susich, Owen & Tackes, Ltd. Robert L. Crowell, March 9, 1990. Carson City Nevada. (Letter)

Department of Commerce. May 16, 1990. Boise, ID. (Letter)

Electricity Committee of the Natural Association of Regulators Utility Commissioners (NARUC). THe National Regulatory Research Institute (NRRI)

Electric Utility Business. April 29, 1991. Idaho Power Files Conservation Plan Forecast of Electicity Use in the Pacific Northwest

Holme Roberts & Owen. L.R. Curtis, Jr. March 5, 1990. Salt Lake City, Utah. (Letter)

Idaho Department of Parks & Recreation. 1990. John Crowe. March 8, 1990. (Letter)

Idaho Power Company. 1991. Resource Management Report: Least Cost Plan. March.

Intercompany Pool, The. 1990. 1989-1990 Loads and Resources Report: July 1989-June 2009. April.

Nevada Power Company. Resource Plan and Action Plan, Volume II.

North American Electric Reliability Cuncil. 1989. Reliability assessment. The future of Bulk Electric & System Reliability in North America 1989-1998. September 1989.

___. 1991. Electricity Supply and Demand: 1991-2000, Annual Summary of Electric Utility Supply and Demand Projections. July.

Pacific Northwest Utilities Conference Committee. 1991 Northwest Regional Forecast of Power Loads and Resources: July 1991 - June 2011. March.

Pacific Power and Utah Power, The. 1989. Planning for Stable Growth, Resource and Market Planning Program. November.

Portland General Electric. 1990. The 1990 Integrated Resource Plan: A Least Cost Approach. October 31.

Sierra Pacific Power Company. 1989. 1989-2008 Electric Resource Plan, Volume 3, Load Forecast. July 1.

Southwest Intertie Project (SWIP) Transmission Line Regional Environmental Report, April 1989, Dames & Moore.

___. Public and Agency Scoping Process Notebook. May 1989. Dames & Moore.

Transmission Task Forces Report to the Commission, The

Electricity Transmission: Realities, Theory and Policy Alternatives

Federal Energy Regulatory Commission, October 1989.

Washington State Energy Office. 1989.

Washington Water Power B.C. Hydro. Transmission Interconnection Project U.S. Department of Energy. December 1989. Draft Environmental Impact Statement.

Western States Coordinating Council (WSCC) - Coordinated Bulk Power Supply Program (1988-1990). April 1, 1989.

Western Systems Coordinating Council. 1991. Coordinated Bulk Power Supply Program: 1990-2000, Reply to USDE Form IE-411 which requests information from the Regional Reliability Councils on Coordinated Regional Bulk Power Supply Programs. April 1.

SOCIOECONOMICS

Anastassatos, George. Labor Economist. Nevada Employment Security Department. Personal Communication. December 26, 1989, March 20, 1990, and October 3, 1990.

Barstow, Steve. Property Tax Auditor. Utah State Tax Commission. Personal Communication. December 8, 1989.

Clark County Department of Comprehensive Planning, 1988. Population Data 1988.

Cowperthwaite, David. Nevada Department of Administration. Personal Communication. December 19, 1989.

Deadder, Pat. Nevada State Library. Personal Communication. December 19, 1989.

Delta Area Chamber of Commerce. No date. Marketing Guide.

Los Angeles Department of Water and Power. 1989. Intermountain Power Project, Socioeconomic Impact Monitoring Report, April 1, 1986 - June 30, 1986.

Dornfest, Allen. Idaho State Tax Commission, Real & Personal Property Section. Personal Communication. December 8, 1989.

Elko County Assessors Office, Nevada. Personal Communication. December 8, 1989.

Gooding County, Idaho. 1985. Comprehensive Plan.

Hansen, Ruth. Mayor of the City of Delta. Personal Communication. December 20, 1989.

Hyer, Janelle. Idaho Department of Employment Security. Personal Communication. March 20, 1990.

Holloway, Chuck, LADWP. 1991. Personal Communication.

Idaho Department of Commerce. 1990. County Profiles of Idaho: Gooding, Jerome and Twin Falls Counties.

Idaho Department of Employment. Bureau of Research and Analysis. April 1989. Idaho Demographic Profile, Fiscal Year 1990.

___. March 1990. Idaho Demographic Profile, Fiscal Year 1991.

Idaho Department of Water Resources and Boise State Research Center. June 1985. Population and Employment Forecast. State of Idaho 1985-2010.

Idaho Division of Economic and Community Affairs. 1980. County Economic Profiles, Gooding County.

Lang, Zelinda. Nye County Deputy Assessor. Personal Communication. October 3, 1990.

Lincoln County Assessor's Office, Nevada. Personal Communication. December 8, 1989.

Nevada Department of Taxation. 1989. Population of Nevada's Counties and Incorporated Cities. 1980 Actuals, 1981 through 1989 Official State Estimates.

Nevada Office of Community Services. 1985. Elko County, Nevada Profile.

Nevada State Demographer. 1989. Population of Estimates (1987, 1988) and Forecasts (1989-2010).

North East Nevada Development Authority and Sierra Pacific Resources. 1989. A Business Portrait of the Carlin/Elko/Wells Communities.

North East Nevada Development Authority. 1989. City of Elko, City of Wells, Community Profile 1988/89.

Porter, Alan. Idaho Department of Commerce. Personal Communication. December 19, 1989 and February 20, 1990.

Resources Northwest. 1984. Income Study for Ruth and McGill, Nevada Prepared for The Ruth-McGill Consolidated Water & Sewer District.

Rorris, Dan, Field Appraisal, Cassia County Assessor's Office. 1991. Personal Communication.

Smith, Linda. Utah Office of Planning and Budget. Personal Communication. December 7, 1989.

State of Idaho. 1985. Agricultural Data. Information compiled by Maurice E. Johnson, Assistant to the Dean and Directors, University of Idaho College of Agriculture, Moscow.

Twin Falls County Joint Planning Council with professional and technical assistance by Stevens, Thompson & Runyon, Inc.. July 1978. Comprehensive Plan: Twin Falls County.

U.S. Department of Agriculture. 1982. Millard County Growth Management Plan, An Investment Strategy for the 601 Program - Farmers Home Administration.

U.S. Department of Commerce, Bureau of the Census. 1980. Idaho, Summary Characteristics for Governmental Units and Standard Metropolitan Statistical Areas.

___. Bureau of the Census. 1990. Summary Tape file 1 for 1990 Census Data.

___. 1989. 1987 Census of Agriculture. Advance County Report. Gooding, Jerome and Twin Falls Counties, Idaho.

___. Bureau of Economic Analysis. 1989. Regional Economic Information System.

University of Nevada - Reno, Bureau of Business and Economic Research. 1985. Population Projections for 1980 - 2010.

Utah Data Center. 1980. Annual Population Projections: 1980-2010.

Utah Department of Commerce, Bureau of the Census. July 1, 1986. Current Population Reports. Local Population Estimates, West 1986 Population and 1985 Per Capita Income Estimates for Counties and Incorporated Places, Series P-26, No. 86-W-SC.

Utah Department of Employment Security. 1989. Economic/Demographic Profile: 1978-1988. Millard and Juab Counties.

Utah Department of Employment Security, Job Service. July 1988. Utah Labor Market Report.

Utah Office of Planning and Budget, Data Resources Section. 1988. State of Utah Economic and Demographic Projections 1988.

West, Marion. 1990. Personal Communication. General Superintendent of Construction for Irby Construction. May 22, 1990.

White Pine County Assessor's Office, Nevada. Personal Communication. December 8, 1989.

White Pine County Economic Diversification Council. 1983. White Pine County, Nevada, Profile.

White Pine Economic Diversification Council. 1989. White Pine County Overall Economic Development Plan.

Whitmore, Jerry. Idaho Employment Service Office. Personal Communication. February 21, 1989.

VISUAL RESOURCES

Allen, Stan et al. 1986. Pacific Northwest Rivers Study - Idaho.

Fenneman, Nevin M. 1931. Physiography of the Western United States. McGraw-Hill Book Company, New York.

Jones and Jones. 1976. Measuring the Visibility of High Voltage Transmission Lines in the Pacific Northwest.

U.S. Department of Agriculture. VMS Inventory and Maps. Humboldt National Forest. Forest Service.

___. VMS Inventory and Maps. Sawtooth National Forest. Forest Service.

___. 1976. Visual Absorption Capability, Dames & Moore. 1986. Aesthetics in Powerline Planning - A Research Study. Forest Service, California Region.

___. 1974. The Visual Management System (VMS) - Chapter 1. U.S. Government Printing Office, Washington, D.C. Forest Service.

U.S. Department of the Interior. 1985. Elko Wilderness Technical Report. Bureau of Land Management - Elko District.

___. 1989. Twin Falls Land Use Decisions Summary and Rangeland Program Summary. Bureau of Land Management. Bureau of Land Management.

___. 1986. Visual Resource Management Inventory and Contrast Rating Manuals. Bureau of Land Management.

___. 1980. Visual Resource Management Program. U.S. Government Printing Office, Washington, D.C. Bureau of Land Management.

___. VRM Inventory and Maps. Deep Creek Resource Area. Bureau of Land Management.

___. VRM Inventory and Maps. Egan Resource Area. Bureau of Land Management.

___. VRM Inventory and Maps. Elko Resource Area. Bureau of Land Management. Maps.

___. VRM Inventory and Maps. Ely Resource Area. Bureau of Land Management.

___. VRM Inventory and Maps. House Range Resource Area. Bureau of Land Management.

___. VRM Inventory and Maps. Jarbridge Resource Area. Bureau of Land Management.

___. VRM Inventory and Maps. Schell Resource Area. Bureau of Land Management.

___. VRM Inventory and Maps. Snake River Resource Area. Bureau of Land Management.

___. VRM Inventory and Maps. Warm Springs Resource Area. Bureau of Land Management.

___. VRM Inventory and Maps. Wells Resource Area. Bureau of Land Management.

APPENDIX B

GLOSSARY, ACRONYMS, AND ABBREVIATIONS

APPENDIX B

Glossary

Access (road)	Road used for passage to and along transmission line for purposes of construction and maintenance.
Alignment	The specific, surveyed route of a transmission line.
Alluvium	A general term for all detrital deposits resulting from the operations of modern rivers, including the sediments laid down in river beds, floodplains, lakes and fans at the foot of mountain slopes and estuaries.
Alternative (action)	An option for meeting the stated need.
Alternative (route)	An optional path or direction for a transmission line.
Ambient	Characteristic of the atmosphere.
Annual (ecology)	A plant that completes its development in one year or one season and then dies.
Aquifer	A stratum of permeable rock, sand, etc., which contains water. Water source for a well.
Archaeology	The science that investigates the history of peoples by the remains belonging to the earlier periods of their existence.
Archival	Pertaining to or contained in documents or records preserved in evidence of something.
Artifact	Any object showing human workmanship or modification, especially from a prehistoric or historic culture.
Assumed Centerline	For purposes of assessing impacts and recommending mitigation a centerline was assigned that may be slightly adjusted during engineering design.
Assessment (environment)	An evaluation of existing resources and potential impacts to them from a proposed act or change to the environment.

Glossary (continued)

Background	That portion of the visual landscape lying between the middleground limits to infinity. Color and texture are subdued in these areas; primarily concerned with the two-dimensional shape of landforms against the sky.
Base Load	The minimum load of a utility over a given period of time.
Candidate, Category 1 (C1)	Taxa for which FWS has substantial information on hand to support proposing the species for listing as threatened or endangered. Listing proposals are either being prepared or have been delayed by higher priority listing work.
Candidate, Category 2 (C2)	Taxa for which the FWS has information to indicate that the listing is possibly appropriate. Additional information is being collected.
Candidate, Category 3 (C3)	Taxa that were once being considered for listing as endangered and threatened but are no longer receiving such consideration.
Capacity	The maximum load that can be generated or transmitted by generating or transmission facilities for a given period of time without exceeding approved limits of temperature or stress.
Capability	The ability to generate or transmit power.
Centerline	A line identified within each broad corridor representing the preferred location for the transmission line.
Circuit	A complete closed conducting path over which electric current may flow.
Committed mitigation	Obligation to a measure that would diminish the severity of an impact.
Community (biological)	A group of one or more populations of organisms that form a distinct ecological unit. Such a unit may be defined in terms of plants, animals or both.
Conductor	A material, usually in the form of a wire or cable, suitable for carrying an electric current.

Construction, Operation and Maintenance (COM) Plans	A detailed plan depicting engineering, access, construction, environmental, and reclamation that is prepared prior to construction and operation of a proposed action.
Contrast	The effect of a striking difference in the form, line, color or texture of an area being viewed.
Contrast rating	A method of determining the extent of visual impact for an existing or proposed activity that would modify any landscape feature (land and water form, vegetation and structures).
Corona	The discharge of energy from an energized transmission line that occurs when the voltage gradient exceeds the breakdown strength of air.
Corridor	A continuous trace of land of defined width through which a utility route passes.
Critically endangered (CE)	State of Nevada Status Code. State status based on NRS 527.260 - .300.
Cultural resources	Any site or artifact associated with cultural activities.
Delete (D)	State of Nevada Status Code. This follows federal non-candidate definitions 3A, 3B, 3C plus NNNPS category 3D: species delisted because name was not formally published.
Distance zone	A visibility threshold distance where visual perception changes. It is expressed as fore-ground, middleground and background.
Electromagnetic field	A space or region within which magnetic forces are present around an electrical current.
Electrostatic field	Pertaining to a space or region within which atmospheric electricity at rest interferes with radar, radio or television reception.
Emergent (vegetation)	Vegetation coming into existence.

Glossary (continued)

Endangered species (E or LE)	Any species in danger of extinction throughout all or a significant portion of its range. This definition excludes species of insects that the Secretary of Interior determines to be pests and whose protection under the Endangered Species Act of 1973 would present an overwhelming and overriding risk to man.
Energy conservation	A means of saving energy.
Environment	The surrounding conditions, influences or forces that affect or modify an organism or an ecological community and ultimately determine its form and survival.
Ephemeral	Lasting for a brief time.
Erosion	The group of processes whereby earth or rock material is loosened or dissolved and removed from any part of the earth's surface.
Ethnography	That aspect of cultural and social anthropology devoted to the first-hand description of particular cultures.
Fault	A fracture or fracture zone along which there has been displacement of the sides relative to one another parallel to the fracture.
Floodplain	That portion of a river valley, adjacent to the river channel, which is built of sediments and is inundated with water at least once every 100 years.
Foreground	The visible area from a viewpoint or use area out to a distance of one-half mile. The ability to perceive detail in the landscape is greatest in this zone.
Foreground/Middleground	The area visible from a travel route, residence or other use area to a distance of 3-5 miles. The outer boundary of this zone is defined as the point where texture and form of individual plants are no longer apparent in the landscape. Vegetation is apparent only in patterns or outline.
Generic mitigation	Mitigation measures or techniques to which the applicants made commitment on a nonspecific basis.

Geology	The science that relates to the earth, the rocks of which it is composed, and the changes that the earth has undergone or is undergoing.
Habitat	A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover and living space.
Hydrology	The science that relates to the water of the earth.
Impact	A modification in the status of the environment brought about by the proposed action.
Insulator	A device that is resistant to the conduction of electricity used for isolating and supporting conductors.
Interdisciplinary team	A group of people with different training representing the physical sciences, social sciences and environmental design arts assembled to solve a problem or perform a task. The members of the team proceed to solution with frequent interaction so that each discipline may provide insights to any stage of the problem and disciplines may combine to provide new solutions.
Ionization	The process of removing an electron from a molecule.
Jurisdictions	The limits or territory within which authority may be exercised.
Kilovolt	1,000 volts (a volt is a measure of electrical potential difference which would cause a current of 1 ampere to flow through a conductor whose resistance is 1 ohm).
Kilovolts per meter (kV/m)	A unit measure of electric field strength.
Kilowatt	A unit of power equivalent to 1,000 watts.
Landform	A term used to describe the many types of land surfaces that exist as the result of geologic activity and weathering, e.g., plateaus, mountains, plains and valleys.

Glossary (continued)

Landscape character type	The arrangement of a particular landscape as formed by the variety and intensity of the landscape features and the four basic elements of form, line, color and texture. These factors give the area a distinct quality which distinguishes it from immediate surroundings.
Link	A segment of a route alternative sharing common endpoints with adjacent links. Endpoints of a link are determined by the location of intersection with other segments (links) of other routes.
Megawatts (MW)	1,000 kilowatts or 1 million watts (a watt is a unit of electrical power equal to 1/756th horsepower).
Microwave	A very short electromagnetic wave.
Milliampere (mA)	Measure of electric current induced in conductive materials within an electric field.
Milligaus (mG)	A unit of measurement for magnetic fields.
Mitigation	To alleviate or render less intense or severe.
Monitor	State of Idaho Status Code. Taxa that are common within a limited range as well as those taxa that are uncommon, but have no identifiable threats (i.e., certain alpine taxa).
One-hundred-year flood	A flood with a magnitude which may occur once every one hundred years. A 1-in-100 chance of a certain area being inundated during any year.
Ozone	A form of oxygen, O_3, produced especially when an electric spark is passed through oxygen or air.
Paleontology	The science that deals with the life of past geological ages through the study of the fossil remains of organisms.
Particulates	Minute, separate particles, such as dust or other air pollutants.
Perennial	Lasting through a year or many years.
Playa	The shallow central basin of a desert plain, in which water gathers after a rain and is evaporated.

Raptor	A bird of prey.
Rare	A plant or animal restricted in distribution. May be locally abundant in a limited area or few in number over a wide area.
Reconnaissance	Preliminary examination or survey of a territory.
Region	A large tract of land generally recognized as having similar character types and physiographic types.
Residual impact	The adverse impact of an action occurring after application of all mitigating measures.
Review	State of Idaho Status Code. Taxa that may be of conservation concern, but for which the state has insufficient data upon which to base a recommendation regarding their appropriate classification.
Right-of-way	Strip of land over which the power line, access road and maintenance road would pass.
Riparian	Situated on or pertaining to the bank of a river, stream, or other body of water. Riparian is normally used to refer to the plants of all types that grow along streams or around springs.
Route	A transmission route is the general path of a transmission line and associated facilities. In this environmental document, a route is comprised of contiguous segments or links.
Scenic-quality class	The designation (A, B, or C) assigned a scenic quality rating unit to indicate the visual importance or quality of a unit relative to other units within the same physiographic province (BLM designation).
Scenic-quality rating unit (SQRU)	A portion of the landscape that displays primarily homogeneous visual characteristics of the basic landscape features (landform, water, vegetation and structures and modifications) which separate it from the surrounding landscape.

Glossary (continued)

Seen area	That portion of the landscape which can be viewed from one or more observer positions. The extent or area that can be viewed is normally limited by landform, vegetation, structures or distance.
Seismicity	The likelihood of an area being subject to earthquakes. The phenomenon of earth movements.
Seldom-seen area	Areas that are either beyond the furthest extent of the background zone (of the area or travel routes) or that are seen from areas or travel routes of low use volume.
Selective mitigation	Mitigation measures or techniques to which the Project Sponsors made commitment on a case-by-case basis after impacts were identified and assessed.
Sensitivity	The state of being readily affected by the actions of external influence.
Series Compensation (series capacitors)	Provides voltage support and increases the electrical capacity of long transmission lines as well as provides for economical loading of the line.
Set	A subdivision of the overall routing network representing localized routing options. Each set is comprised of two or more routes sharing common endpoints.
Significant (impact)	"Significant" has been used in this document to describe any impact that would cause a substantial adverse change or stress to one or more environmental resources. In general, all potential high impacts were considered to be "significant;" but in some cases potential moderate impacts were considered significant.
Site	Any locale showing evidence of human activity.
Species	A group of individuals of common ancestry that closely resemble each other structurally and physiologically and in nature interbreed producing fertile offspring.
Study area	A given geographical area delineated for specific research.

Substation	A facility in an electrical transmission system with the capability to route and control electrical power, and to transform power to a higher or lower voltage.
Technical Report	Document containing detailed studies summarized in PA/EIS.
Terminal	(see Substation)
Threatened species (T or LT)	Any species likely to become endangered within the foreseeable future throughout all or a significant part of its range.
Use volume	The total volume of visitor use each segment of a travel route or use area receives.
Utility corridor	A common route used by more than one utility for transportation.
Variety Class	A designation (A, B, or C) assigned to a homogeneous area of the landscape to indicate the visual importance or quality relative to other landscape areas within the same physiographic province (FWS designation).
Visual Management System	System of land management based upon meeting visual resource goals (FS).
Visual Management Objectives	The term used in this study to generally define VRM (BLM) or VQO classes (FS).
Visual-Resource Management classes (VRM)	Classification of landscapes according to the kinds of structures and changes that are acceptable to meet established visual goals (BLM designation).
Visual sensitivity levels	The index of the relative degree of user interest in scenic quality and concern for existing or proposed changes in the landscape features of that area in relation to other areas in the study area.
Visual Quality Objectives	Classification of landscape areas according to the types of structures and changes that are acceptable to meet established visual goals (FS designation).
Volts per Meter (v/m)	A unit of measurement of an electric field.

Watch (W)	Plants of uncertain abundance and distribution and/or those whose threats cannot be currently defined.
Wetlands	Those areas that are inundated by surface or groundwater with a frequency sufficient to support vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

Acronyms and Abbreviations

AC	alternating current
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ACSR	aluminum conductor steel-reinforced
AFB	Air Force Base
AGL	above ground limit
AN	audible noise
ANSI	American National Standards Institute
AQMP	Air Quality Management Program
BLM	Bureau of Land Management
BMP	Best Management Practices
BNRC	Board on Natural Resources & Conservation (Montana)
BPA	Bonneville Power Administration
BOR	Bureau of Reclamation
CEQ	Council on Environmental Quality
C/EE	Conservation and Energy Efficiency
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
COM	Construction, Operation, and Maintenance Plan
CWA	Clean Water Act of 1972
DC	direct current

Acronyms and Abbreviations (continued)

dbA (or db(A)	decibels on the A-scale
DEIS	Draft Environmental Impact Statement
DNA	deoxyribonucleic acid
DOE	Department of Energy
DPA	Draft Plan Amendment
EHV	extra high voltage
EIS	environmental impact statement
EMF	electromagnetic field
EMI	electromagnetic interference
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FLPMA	Federal Land Policy and Management Act
FS	USDA Forest Service
FWS	USDI Fish and Wildlife Service
GBNP	Great Basin National Park
GIMS	geographic information management system
GIS	geographic information system
GMP	General Management Plan
GW	gigawatt
HC	hydrocarbons
HCC	high current configuration

Acronyms and Abbreviations (continued)

HV	high voltage
H_z	hertz
IA/MPP	Impact Assessment/Mitigation Planning Process
IBLA	Interior Board of Land Appeals
IDFG	Idaho Department of Fish and Game
IDWR	Idaho Department of Water Resources
IPA	Intermountain Power Authority
IPCo	Idaho Power Company
IPP	Intermountain Power Project
kHz	kilohertz
kV	kilovolt
kV/m	kilovolts per meter
LADWP	Los Angeles Department of Water and Power
LCC	low current configuration
mA	milliampere
MAP	Marketplace-Allen Transmission Project
mG	milligauss
MFP	Management Framework Plan
MEQB	Minnesota Environmental Quality Board
MOA	military operating area
MOU	Memorandum of Understanding
mRNA	messenger ribonucleic acid
MUSY	Multiple Use, Sustained Yield Act of 1960

Acronyms and Abbreviations (continued)

MVA	mega-volt ampere
MW	megawatt
MWH	megawatt-hour
NA	Natural Area
NAAQS	National Ambient Air Quality Standards
NDOW	Nevada Department of Wildlife
NDPSC	North Dakota Public Service Commission
NEPA	National Environmental Protection Act of 1969
NERC	Nuclear Energy Regulatory Commission
NESC	National Electrical Safety Code
NHPA	National Historic Preservation Act of 1986
NJDEP	New Jersey Department of Environmental Protection
NMBM&MR	New Mexico Bureau of Mines and Mineral Resources
NNNPS	Northern Nevada Native Plant Society
NO_x	nitrogen oxide
NPC	Nevada Power Company
NPS	National Park Service
NRA	National Recreation Area
NRHP	National Register of Historic Places
NYPSC	New York Public Service Commission
OHV	off-highway vehicle
ORV	off-road vehicle
PA	Plan Amendment

Acronyms and Abbreviations (continued)

PIFUA	Powerplant and Industrial Fuel Use Act
PGE	Portland Gas & Electric
PPL	Pacific Power & Light
PSD	Particulates of Significant Deterioration
PURPA	Public Utilities Regulatory Policies Act of 1978
RFP	Request for Proposal
RI	Radio Interference
RMP	Resource Management Plan
rms	root-mean-square
RNA	ribonucleic acid
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
SA	Special Area
SCADA	Supervisory Control and Data Acquisition
SCS	Soil Conservation Service
SCPPA	Southern California Public Power Authority
SHPO	State Historic Preservation Office
SQRU	Scenic Quality Rating Unit
SO_2	sulfur dioxide
SPPC	Sierra Pacific Power Company
SRMA	Special Recreation Management Area
SRP	Salt River Project
SWIP	Southwest Intertie Project

Acronyms and Abbreviations (continued)

TDHS	Transmission and Distribution Health and Safety
TSP	Total Suspended Particulates
TVI	Television Interference
TSPP	Thousand Springs Power Plant
UAMPS	Utah Associated Municipal Power Systems
UDWR	Utah Division of Wildlife Resources
UNTP	Utah-Nevada Transmission Project
UPL	Utah Power & Light
U.S.	United States
USDI	United States Department of the Interior
USGS	USDI Geological Survey
UTTR	Utah Training and Testing Range
V/m	volts per meter
VRM	Visual Resource Management
VQO	Visual Quality Objective
WAPA	Western Area Power Administration
WPPP	White Pine Power Project
WSA	Wilderness Study Area
WSCC	Western Systems Coordinating Council

APPENDIX C
AGENCIES AND ORGANIZATIONS CONTACTED

APPENDIX C
AGENCIES AND ORGANIZATIONS CONTACTED DURING PREPARATION OF THE DRAFT EIS/PA

FEDERAL AGENCIES

Federal Emergency Management Agency

Las Vegas, Nevada

US Department of Defense

California

U.S. Army Corps of Engineers
Sacramento District Regulatory Section - Sacramento

Idaho

Mountain Home Air Force Base - Mountain Home

Nevada

Nellis Air Force Base - Las Vegas

Utah

Hill Air Force Base - Ogden

US Department of Energy

Bonneville Power Administration - Boise

Western Area Power Administration

US Department of Transportation

Federal Aviation Administration

Denver District - Denver, Colorado

Seattle District - Airports Division

US Department of Agriculture

Forest Service

Idaho

Boise National Forest

Caribou National Forest

Sawtooth National Forest,
Twin Falls Ranger District - Twin Falls

Nevada

Humboldt National Forest - Elko

Humboldt National Forest - Ely

Ely Ranger District - Ely

Ruby Mountains Ranger District - Wells

Utah

Fishlake National Forest

Wasatch/Cache National Forest

Regional Office - Ogden

Soil Conservation Service

Idaho

Boise
Gooding
Twin Falls

Nevada

Caliente
Elko
Ely
Las Vegas
Tonopah
Reno

Utah

Filmore

US Department of the Interior

Bureau of Indian Affairs

Arizona

Rights Protection Branch - Phoenix

Idaho

Fort Hall Indian Reservation

Nevada

Duck Valley Shoshone - Paiute
Business Council

Duckwater Indian Reservation
Duckwater Shoshone Tribal Council

Ely Tribal Council - Ely

Inner-Tribal Council of Nevada - Reno

Las Vegas Indian Center - Las Vegas

Moapa Band of Paiute - Moapa and Las Vegas

National Council of Western Shoshone
Duckwater Indian Reservation - Austin

Nevada Indian Commission - Reno

Te-Moak Tribe of Western Shoshone
Battle Mountain Band Council

Te-Moak Tribe of Western Shoshone
Elko Tribal Council

Te-Moak Tribe of Western Shoshone
Ely Band Council

Te-Moak Tribe of Western Shoshone
South Fork Band Council

Te-Moak Tribe of Western Shoshone
Wells Band Council

Western Shoshone National Council
Duckwater Indian Reservation - Nevada

Western Shoshone Tribe
Te-Moak Elders Council

Yomba Indian Reservation
Yomba Tribal Council - Austin

Utah

Cedar City

Confederated Tribes of the Goshute
Goshute Band Council - Ibapah

Division of Indian Affairs - Salt Lake City

Kanosh Band of Paiutes - Kanosh

Koosharem Band of Paiutes - Richfield

Paiute Indian Tribe of Utah
Southern Paiute Chairman's Association

Shivwits Paiute Indian Tribe

Skull Valley Indian Reservation
Skull Valley Goshute Tribe - Grantsville

South Paiute Tribe - Cedar City

Uintah & Ouray Indian Reservation
Ute Tribal Council

Bureau of Land Management

Colorado

Federal Center - Denver

Idaho

Boise District - Boise

Jarbidge Resource Area

Burley District - Burley

Snake River Resource Area
Deep Creek Resource Area

Idaho Falls District

Idaho State Office - Boise

Shoshone District - Shoshone

Monument Resource Area
Bennett Hills Resource Area

Nevada

Elko District - Elko

Wells Resource Area

Ely District - Ely

Egan Resource Area
Schell Resource Area

Las Vegas District - Las Vegas

Caliente Resource Area
Stateline Resource Area

Nevada State Office - Reno

Utah

Cedar City District - Cedar City

Richfield District - Richfield

House Range Resource Area
Warm Springs Resource Area

Salt Lake City District - Salt Lake City

Utah State Office - Salt Lake City

Bureau of Mines

Intermountain Field Operations Center - Denver, Colorado

Salt Lake City, Utah

Western Field Operations Center - Spokane, Washington

Bureau of Reclamation

Arizona

Glen Canyon Environmental Studies

Idaho

Pacific Northwest Region - Boise

Minidoka Project Office - Burley

Nevada

Lower Colorado River Regional Office - Boulder City

Nevada State Office

Utah

Provo

Fish and Wildlife Service

Idaho

Boise Field Office - Boise

Nevada

Reno
Las Vegas

Geological Survey

Salt Lake City, Utah

National Park Service

California

Western Regional Office - San Francisco

Colorado

Rocky Mountain Regional Office - Denver

Idaho

Hagerman Fossil Beds National Monument - Hagerman

Fossil Beds National Monument - Twin Falls

Nevada

Great Basin National Park - Baker

National Parks & Conservation Assoc.

NW Regional Office - Des Moines, WA

Advisory Council on Historic Preservation - Golden, Colorado

Department of Administration

STATE AGENCIES

Arizona

State Department Center

Idaho

Department of Commerce - Boise

Department of Employment - Boise

Department of Fish & Game - Boise

Department of Lands - Boise

Bureau of Minerals

Department of Parks & Recreation

Department of Transportation - Boise

Highway District #4

Department of Water Resources

Governor's Office

Idaho Travel Council

Idaho Historic Preservation Office

Idaho Natural Heritage Program - Boise

Nevada

Air Quality Board

Commission on Tourism - Carson City

Consumer Health Protection Service

Department of Agriculture

Department of Conservation & Natural Resources

Department of Employment Security - Elko

Division of Environmental Protection

Division of Historic Preservation & Archaeology - Carson City

Division of State Lands

Division of State Parks

Nevada Bureau of Mines & Geology - Reno

Department of Transportation
Elko
Ely

Department of Wildlife

Elko
Ely
Eureka
Las Vegas
Reno
Wells

Grazing Board

State Demographer's Office

Utah

Department of Employment Security

Department of Public Safety - Salt Lake City

Department of Transportation - Cedar City

Division of Parks & Recreation - Salt Lake City

Department of Natural Resources & Energy

Division of State History - Salt Lake City

Division of Water Rights

Division of Wildlife Resources - Springville

Natural Heritage Program

Office of Planning and Budget

State Historic Preservation Office
Division of State History - Salt Lake City

State Lands & Forestry - Richfield

State Paleontologist

State Planning - Salt Lake City

Travel Council

Water Resources

Washington

State Data Center (Washington)

County

Idaho

Cassia County

Cassia County Commission
Treasurer's Office
Assessors

Gooding County

Gooding County Commission

Jerome County

Jerome County Commission
Planning & Zoning Department

Lincoln County

Department of Planning & Zoning - Shoshone
Lincoln County Commission

Twin Falls County

Twin Falls County Commission
Appraisal District
Planning and Zoning

Nevada

Clark County

Planning Commission - Las Vegas
Health Department - Las Vegas

Elko County

Planning Department - Elko
Elko County Commission

Lincoln County - Pioche

Assessors Office
Lincoln County Commission
Planning Commission

Nye County

Nye County Commission
Planning & Zoning
Court House
Recorder's Office

White Pine County - Ely and White Pine

Chamber of Commerce (Nevada)
Parks Masterplan
County Planning
White Pine County Commission

Utah

Juab County Commission

Millard County

County Recorder Office - Filmore
Planning & Zoning - Delta
Six County Planning

City

California

City of Los Angeles
Department of Water & Power - Los Angeles

Idaho

Chamber of Commerce - Twin Falls

Hagerman City Hall

Gooding

Chamber of Commerce
Planning Commission

Nevada

Baker Advisory Board - Baker

Utah

City of Delta
Planning and Zoning Department

Other Interested Groups

B Kitten Klean Campground - Millard Co., Utah

Ballantyne Geochemistry - Salt Lake City, Utah

Banbury Hot Springs

Bath Lumber

Beehive Telephone Company

Bell-Walker Engineers - Boise, Idaho

Billiton Minerals - Reno, Nevada

Bristlecone Convention Center

Chas. T. Main, Inc.

Earth Satellite Corporation - Rockville, MD

EEI

Environmental Research Information, Inc. - New York, NY

Environmental Research Information, Inc. - Palo Alto, CA

Holme, Roberts & Owen

IRBY Construction

JACL/Minidoka Center - Idaho

KOA - Juab Co., Utah

Merrick

Miracle Hot Springs

Nature Conservancy

Natural Heritage Program

Nevada Commission for Preservation of Wild Horses

Northside Canal Company - Jerome, Idaho

Raptor Research Foundation

Reeder Air Service

Resource Concepts - Carson City, Nevada

Resource Development Coord. Comm. - Utah

Rock Lodge & Creekside RV Park

Sargent and Lundy

Sligar Thousand Springs

Sportsman River Resort

UDWR Resource Analysis Group

Utah Preservation Office
Utah State Historical Society

Wagon West Campsite - Mallard Co., Utah

Western Aerial Research

Utilities

California

Sacramento Municipal Utilities District

San Diego Gas & Electric
Transmission Planning Section - San Diego

Colorado

Western Interstate Energy Board - Denver

Idaho

Idaho Power Company - Twin Falls District

Idaho Power Company
Western Field Operations Center - Boise

Intermountain Gas Company - Boise

Nevada

Lincoln County Power Company

Nevada Power Company

White Pine Power Project - Ely

Sierra Pacific Power Company

Oregon

Utility Spotlight - Portland

Utah

Melville--Delta Canal Company

Northwest Pipeline - Salt Lake City

Questar Pipeline
ROW Department - Salt Lake City

Utah Power and Light

Western Area Power Administration - Salt Lake City

Media

Box Elder Journal - Brigham City, Utah

The Daily Spectrum - Cedar City, Utah

Elko Daily Free Press - Elko, Nevada

Elko Independent - Elko, Nevada

Ely Daily Times - Ely, Nevada

The High Desert Advocate - Wendover, Nevada

Idaho Press Tribune - Nampa, Idaho

Idaho Statesman - Boise, Idaho

The Las Vegas Sun (Daily) - Las Vegas, Nevada

The Las Vegas Review Journal - Las Vegas, Nevada

Lincoln County Record - Caliente, Nevada

Millard County Chronicle Progress - Delta, Utah

Millard County Gazzette - Fillmore, Utah

Reno Gazette Journal - Reno, Nevada

Richfield Reaper - Richfield, Utah

Salt Lake City Tribune/Deseret News - Salt Lake City, Utah

Times News - Twin Falls, Idaho

Tremonton Leader - Tremonton, Utah

Libraries, Universities and Museums

Idaho

Idaho State University
Idaho Museum of Natural History - Pocatello

Nevada

Nevada State Library

Nevada State Museum - Carson City

Nevada State Museum - Las Vegas

University of Nevada
Nevada Natural Heritage Program - Las Vegas

University of Nevada - Reno

Utah

University of Utah

Geology Department

Museum of Natural History

Utah Arboretum

APPENDIX D
SUBROUTE EVALUATION PROCESS

APPENDIX D
SUBROUTE EVALUATION PROCESS

INTRODUCTION

Over 140 alternative routing segments or "links" were identified and studied in detail for the SWIP EIS/PA. NEPA requires that "reasonable and feasible" alternatives be compared in an Draft EIS/DPA. The number of possible routing alternatives that could be assembled from the numerous links would easily number in the hundreds, and would be unreasonable to compare in a DEIS. Subsequently, it was necessary to determine environmental preferences for localized routing alternatives. To facilitate this, the subroute evaluation process was developed.

Methods

Each subroute set is composed of individual links or combinations of several links that begin and end at common junction points in localized areas. The areas highlighted in gray in Figure 2-8 (in Chapter 2) illustrate the general locations of the 24 subroute sets evaluated in this section.

A set of subroute evaluation forms was developed to facilitate the subroute analysis and to document the results of the subroute selection process. Each subroute set is illustrated on a separate evaluation form. These forms contain a diagrammatic illustration of the links that compose each subroute set, a summary table with the mileage of potential impacts for each subroute (H = High, M = Moderate, and L = Low), and a graphic ranking scale by resource (e.g., biology, cultural, etc.).

The potential impacts of each subroute within a set were summarized from detailed impact assessment/mitigation planning process data for the five major resource disciplines: biology, earth, visual, land use, and cultural (refer to the Objectives, Procedure, and Results technical report).

In addition to analyzing and comparing the numeric impact data, project planners and resource specialists ranked each subroute within a subroute set based on their knowledge of the project area and the issues and concerns expressed by agencies and/or the public. The values on the graphic scale range from 1 (least favored) to 10 (most favored). Each subroute evaluation form documents the ranking of each subroute for each of the five resource disciplines indicated on the graphic scale. Project planners determined the environmentally preferred subroute within a set by considering the ranks assigned by resource specialists.

The link or combination of links selected as the environmentally preferred subroute was used to develop alternative routes. Major routing alternatives, or links in areas where no other

localized alternatives occurred, are termed "connectors". Connectors combined with the link combinations selected in the subroute evaluation process were used to assemble the alternatives routes that are compared in the DEIS/DPA.

Results

The results of the subroute evaluation and selection process are summarized in this section. The subroute evaluation forms are also included at the end of this section.

Subroute Set 1 - Subroute 1a (Link 20) would pass adjacent to the new Minidoka Relocation Center historic interpretive site resulting in significant visual impacts to views from this site (refer to photosimulation in map volume). However, Subroute 1b (Link 30) would result in direct physical impacts to farm structures at a feedlot operation and to wheel-line irrigation systems. To meet the National Electrical Safety Code several farm buildings would have to be removed or relocated. Subroute 1a is the preferred subroute because committed mitigation would reduce or offset the visual impacts to the historic interpretive site. In addition, the proponent has committed to offsite mitigation related to the development of the interpretive facilities, in coordination with Bureau of Reclamation.

Subroute Set 2 - Subroute 2a (Link 62) would minimize potential visual impacts to the proposed Hagerman Fossil Beds National Monument visitor's center. Subroute 2b would traverse the northwest boundary of this national monument. By using a strip of BLM land called Dickey Bird Lane, this subroute would also avoid potentially direct conflicts with agricultural irrigation systems in the area and minimizes the skylining of towers visible from within the national monument. For this reason, the subroute 2a is the environmentally preferred.

Subroute Set 3 - Because Subroute 3b (Links 70, 72, 101, 102, 110) would result in the fewest construction effects to sage grouse leks and wintering areas and would parallel the Upper Salmon to Wells 138kV and Midpoint to Valmy 345kV transmission lines, it is environmentally preferred. Six of the seven other subroutes in this set would result in direct and indirect impacts to sage grouse leks. Subroute 3d may be a somewhat better crossing of U.S. Highway 93, however, this subroute would pass adjacent to two rural residences, and Link 711 would result in impacts to sage grouse leks.

Subroute Set 4 - Similarly, because Subroute 4c (Links 40, 50, 70, 72, 91, 92) would result in the fewest construction effects on sage grouse leks and wintering areas and would parallel more miles of existing transmission lines than other subroutes, it is environmentally preferred. Subroute 4d would cross Salmon Falls Creek downstream from the two existing transmission line crossings. The other two subroutes in this set would result in greater impacts to sage grouse and more visual impacts to recreationists.

Subroute Set 5 - Subroute 5a would result in visual impacts to the Winecup Ranch in Thousand Springs Valley and higher impacts to sage grouse. Subroute 5b (Links 160,

161, 162, 1612) is environmentally preferred because it avoids visual impacts to views from the Winecup Ranch in Thousand Springs Valley and would result in the fewest potential impacts to sage grouse leks and habitats. Subroute 5c would result in impacts similar to Subroute 5a, but is longer and would affect more previously undisturbed areas.

Subroute Set 6 - Subroute 6a (Link 142) was selected because it would result in fewer potential impacts to sage grouse leks and wintering areas. Subroute 6b would directly impact a known cultural site.

Subroute Set 7 - Subroute 7d (Links 162, 1611, 166, 167, 1613) is environmentally preferred because it would parallel the Upper Salmon to Wells 138kV transmission line and would result in the fewest impacts to sage grouse. Subroutes 7a and 7c would result in higher impacts to critical sage grouse habitats.

Subroute Set 8 - Subroute 8b (Link 180) is environmentally preferred because it would avoid visual impacts to Wells, Nevada, and result in fewer impacts to known cultural sites.

Subroute Set 9 - Subroute 9a (Link 211) is environmentally preferred because it would be backdropped by the Pequop Mountains and provide a less visually intrusive crossing of Interstate 80, a BLM low visibility corridor. Subroute 9b would utilize the railroad corridor. However, concerns have been expressed for potential impacts to views from a ranch residence on the western edge of Goshute Valley.

Subroute Set 10 - Both subroutes would result in significant impacts to cultural resources in the Shell Creek Range. Subroute 10a (Link 263) is the environmentally preferred subroute because overall it would result in somewhat fewer miles of impacts.

Subroute Set 11 - Both Subroute 11b (Links 291, 293, 300) or Subroute 11d (Links 291, 293, 310) are environmentally acceptable. The BLM has expressed concerns for wildlife impacts and a watering area where Subroutes 11a and 11c would cross through Antone Pass area. Subroute 11e would result in significant and unavoidable direct impacts to wetlands area around Bassett Lake northwest of McGill, Nevada.

Subroute Set 12 - Subroute 12a would have fewer moderate impacts to views from U.S. Highway 93 and would cross fewer miles of erosive soils. However, Subroute 12b (Links 250, 259, 260) is environmentally preferred because it would avoid a potential direct impact to a known cultural site.

Subroute Set 13 - Subroute 13a (Links 266, 620, 621) is preferred to Subroute 13b (Links 610, 611) because it could be used for both the Cutoff and Direct Routes. The BLM has expressed concerns that Subroute 13b would result in adverse visual impacts to the Blue Mass Scenic Area. Subroute 13a would result in some potentially high impacts to bald eagles and sage grouse.

Subroute Set 14 - Subroute 14b (Links 320, 350, 351, 352, 370, 390, 410) is environmentally preferred because it would parallel the Gondor-IPP and Gondor-Pavant 230kV transmission lines for most of its length. Subroutes 14a and 14c would result in potentially high impacts to ferruginous hawks in Jakes Valley and would impact sensitive soils and cultural sites.

Subroute Set 15 - Subroute 15a (Link 380) is environmentally preferred because it would parallel the Gondor-IPP and Gondor-Pavant 230kV transmission lines through Cooper Canyon in the Humboldt National Forest. Subroute 15b would impact views from U.S. Highway 93, a designated scenic highway, through Conners Pass and from Majors Place.

Subroute Set 16 - Subroute 16a (Link 430) is environmentally preferred largely because it would be considerably shorter. Subroute 16b would avoid some moderate visual impacts to views from a ranch headquarters, but would result in some potentially high impacts to a ferruginous hawk nest.

Subroute Set 17 - This subroute set occurs in the Robinson Summit area west of Ely, Nevada, an alternative substation location. Subroute 17c (Links 340, 362, 363) is environmentally preferred because it would largely avoid impacts to ferruginous hawk nests and habitat in Jakes Valley. Subroute 17e would result in more impacts to ferruginous hawks. The final decision of a subroute in this set may depend on the selection of the substation site.

Subroute Set 18 - Either Subroute 18a (Links 672, 674, 675) or Subroute 18b (Links 672, 673, 675) is environmentally acceptable. Subroute 18a would cross near Bristol Well near a significant cultural site in an historic mining district. Subroute 18c would conflict with military aircraft operations from Nellis AFB. Also, the BLM has expressed a desire to maximize the use of the utility corridor in Dry Lake Valley (Subroutes 18a or 18b).

Subroute Set 19 - Subroute 19b (Links 510, 560, 571, 572, 580, 581, 582) is environmentally preferred because it would parallel the existing IPP-Adelanto 500kV transmission line through the Delta, Utah area. Subroute 19a would potentially result in direct conflicts with agricultural uses west of Delta. Subroute 19b is the preferred routing approach to connect Sevier substation site (refer to Appendix E).

Subroute Set 20 - Subroute 20a (Link 224) is environmentally preferred because it would be a better crossing of U.S. Highway 93 Alternate near Ferguson Mountain, minimizing visual impacts to views from this highway.

Subroute Set 21 - Subroute 21a (Links 470, 550, 560, 571, 572, 581, 582) was selected as environmentally preferred because it would parallel the 230kV transmission line corridor and join the 500kV transmission line. This subroute would provide connections to three of the four alternative substation sites in the vicinity of Delta. Subroutes 21c and 21e would result in greater potential conflicts with agricultural operations. Subroutes 21b and 21c would be used only if the alternative substation site located in the Sevier substation siting area was selected (refer to Appendix E).

Subroute Set 22 - Subroute 22a (Link 690) was selected as environmentally preferred because it would parallel the Lincoln County Coop 69kV transmission line and utility corridor and would also minimize visual impacts to a portion of the proposed Kane Springs Backcountry Byway. Nellis AFB has expressed concerns for Subroute 22b because it would conflict with military aircraft operations in Kane Springs Valley and the Delamar Mountains.

Subroute Set 23 - This subroute set is described in Chapter 2 as the Moapa alternatives. Subroute 23a (Link 720) through Coyote Spring Valley is environmentally preferred because it would avoid significant impacts to cultural sites and visual impacts to high sensitivity recreation viewpoints. The high cultural impacts in this area is from a traditional cultural use zone with some sacred elements, although no specific locales are known. Representatives of the Moapa Band of the Paiute indicate a higher level of concern for the northern and northeastern end of the Arrow Canyon Range, which would be crossed by Subroutes 23b, 23c, or 23d. The potential to mitigate the known archaeological sites along Subroute 23a (Link 720) seem quite high. It is uncertain if the traditional cultural use area along this subroute could be effectively mitigated. Several cultural sites, including a rock art and rockshelter sites are located on the northeastern end of the Arrow Canyon Range. These sites have archaeological significance and importance to the Moapa Paiute community as well. Because the significance of these sites is likely to extend beyond their simple information potential, the possibilities for developing acceptable mitigation measures are lessened. Also, these sites are well known and impacts from visual intrusion or increased public accessibility could be very significant.

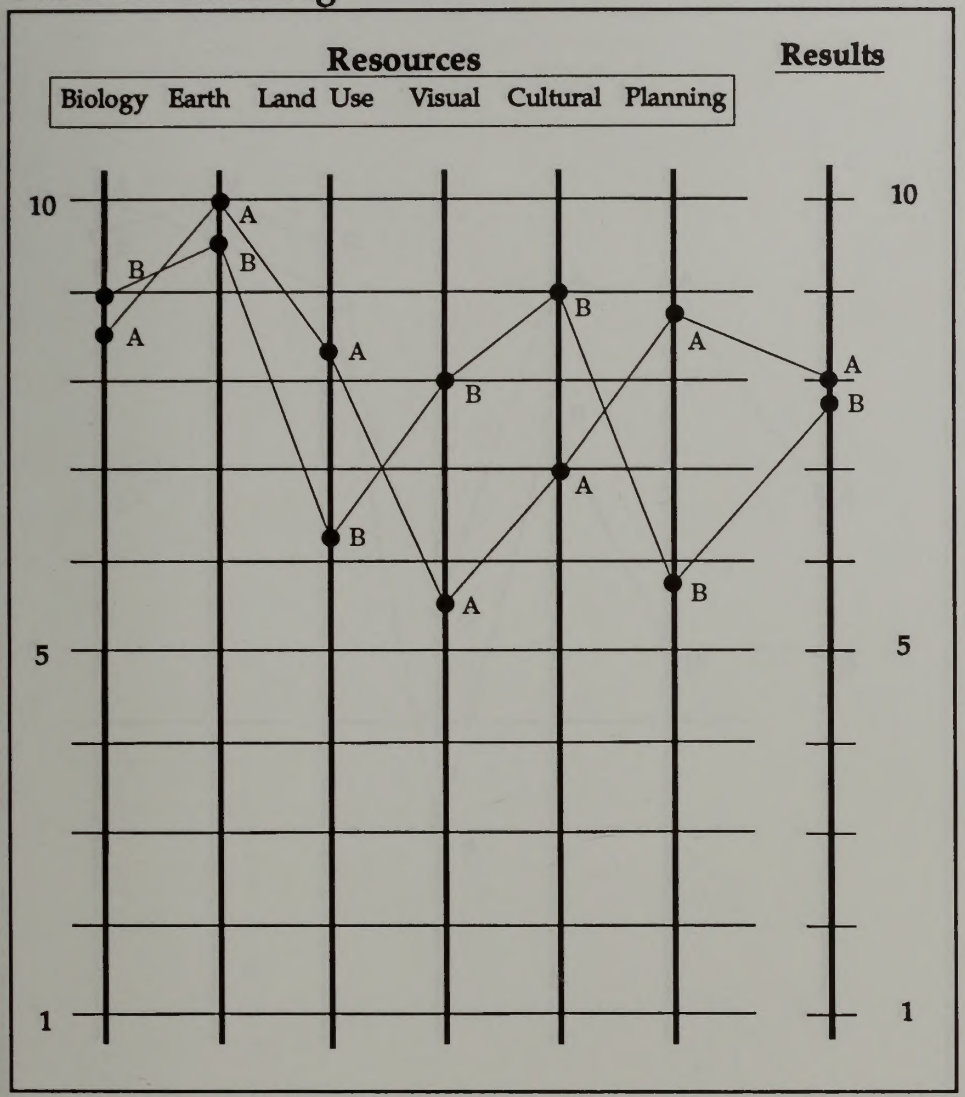
The BLM has expressed concerns for potential impacts to Category I desert tortoise habitat along Subroute 23a (Link 720) Coyote Spring Valley and Hidden Valley (approximately 15.4 miles crossed) and visual impacts in a VRM Class II area to views from U.S. Highway 93. Although Subroute 23a would result in a greater number of moderate impacts to visual and cultural resources, Subroutes 23b, 23c, and 23d would result in high visual impacts to recreationists on the east side of the Arrow Canyon WSA and to a proposed interpretative trail in the area. These subroutes would all cross 2.1 miles of Category I desert tortoise habitat and 9.6, 15.5, and 16.8 miles of Category II habitat respectively.

However, despite the crossing of more Category I habitat by Subroute 23a and the culturally sensitive zone, it is the preferred location through this area because of the existing impacts to the desert tortoise and the potentially greater significance of cultural sites on Subroutes 23b, 23c, and 23d. The proximity of Subroute 23a to U.S. Highway 93 lessens the potential impacts to desert tortoise even though the densities are higher in the Coyote Springs Valley (Link 720).

Subroute Set 24 - Subroute 24a is environmentally preferred because it would avoid crossing a portion of the Old Spanish Trail/Mormon Road and would be a better crossing of Interstate 15. A decision on this subroute would depend on the route selected for the Marketplace-Allen Transmission Project (MAT) proposed by the Nevada Power Company, a proposed 500kV transmission connection from the Dry Lake/Harry Allen substation area to the Mead/McCullough Substation area. The

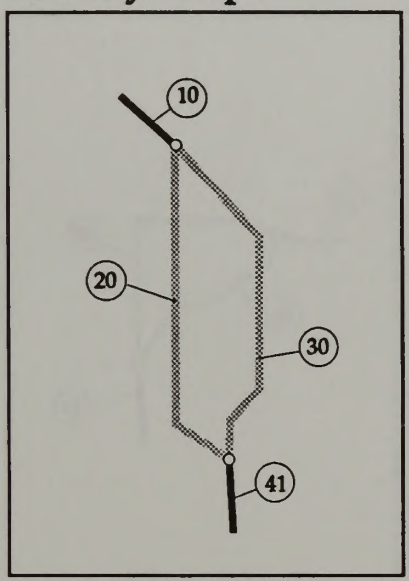
MAT could potentially travel along two major routes south of the Dry Lake Valley area. The first would cross straight south through the Apex development, turn southeast toward the Gypsum Wash area, and then south again through the Sunrise Mountain area and Henderson. The second would cross Interstate 15 on the north end of the Dry Lake range and cross straight south to the Sunrise Mountain area and Henderson. Therefore, the selection of Subroute 24a would only be valid if either substation sites 18 or 20 are selected and the MAT is routed around the north end of the Dry Lake range and south to the McCullough area. If the MAT is routed the other way, a selection of a subroute from this set is unnecessary. The current status of the Sunrise Mountain area as a WSA would preclude a right-of-way grant through the area without a change in its status by the U.S. Congress.

Subroute Ranking



Subroute Set 1

Vicinity Map

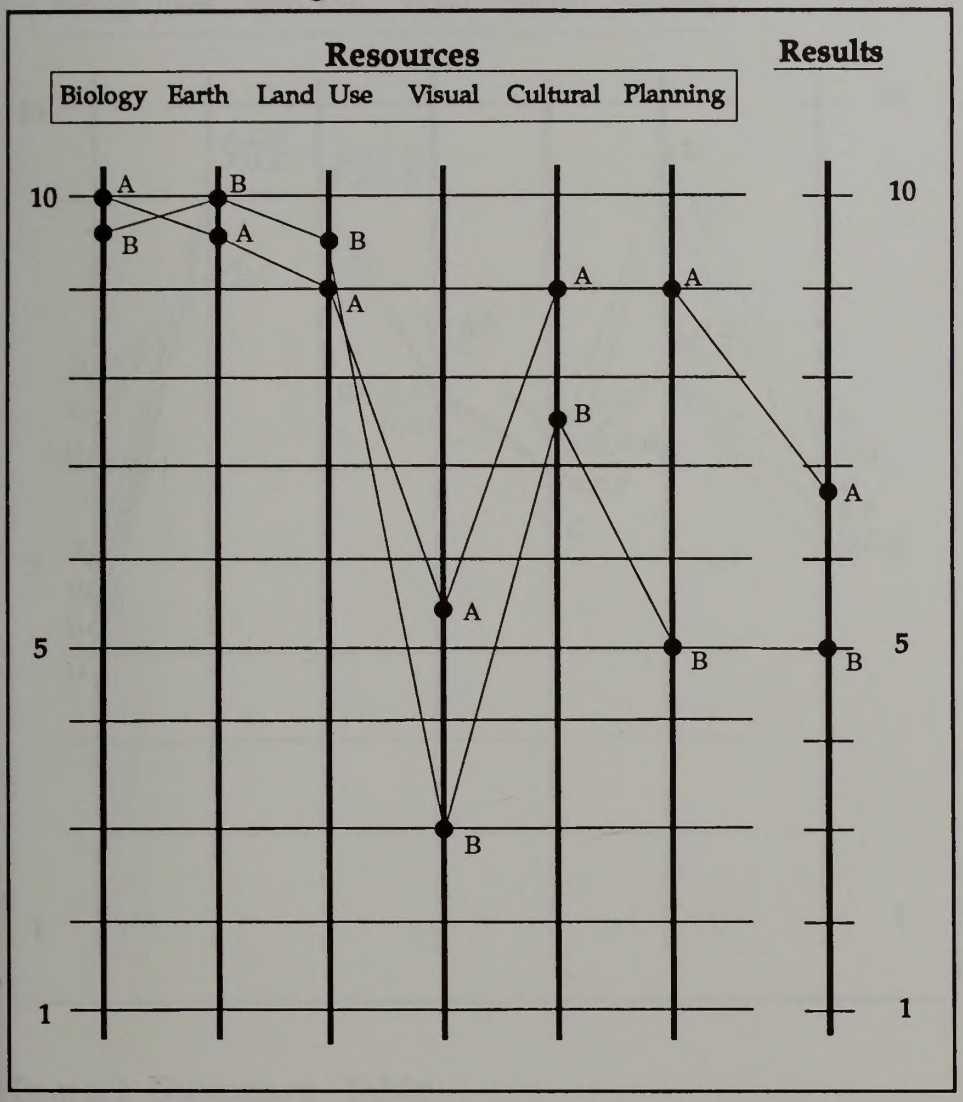


Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
1a	20	4.4	0.5	0.0	5.6	0.0	0.0	2.3	0.0	0.0	4.5	0.9	0.2	1.5	2.6	1.5	0.0	Minidoka Relocation Center
1b	30	5.5	0.1	0.0	6.1	0.0	0.0	1.9	0.0	0.0	4.2	1.5	0.3	2.5	2.3	1.3	0.0	direct impacts to farm structures

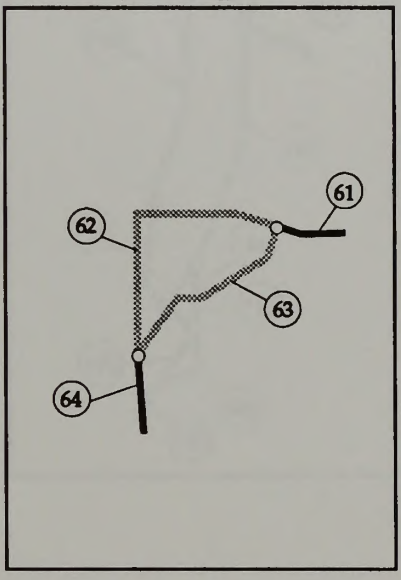
Subroute Evaluation Form

Subroute Ranking



Subroute Set 2

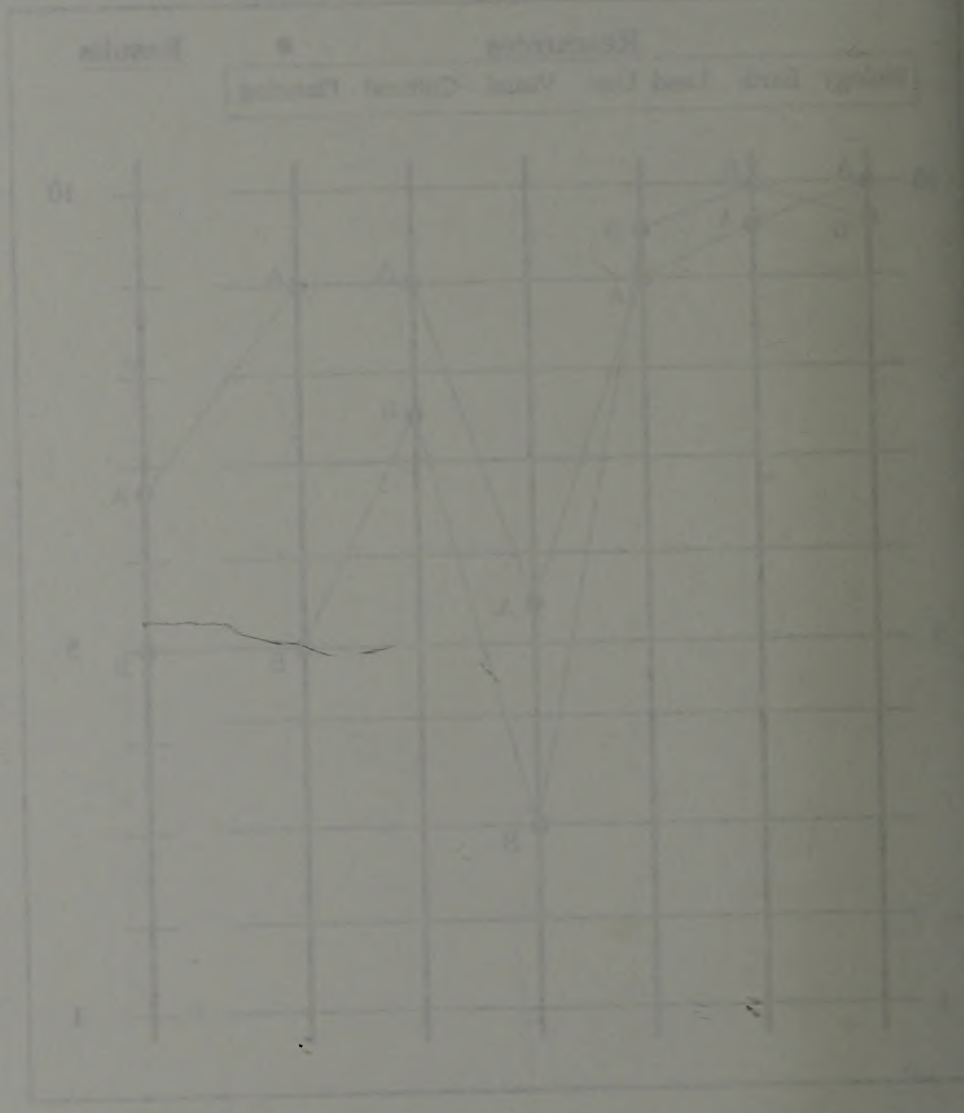
Vicinity Map



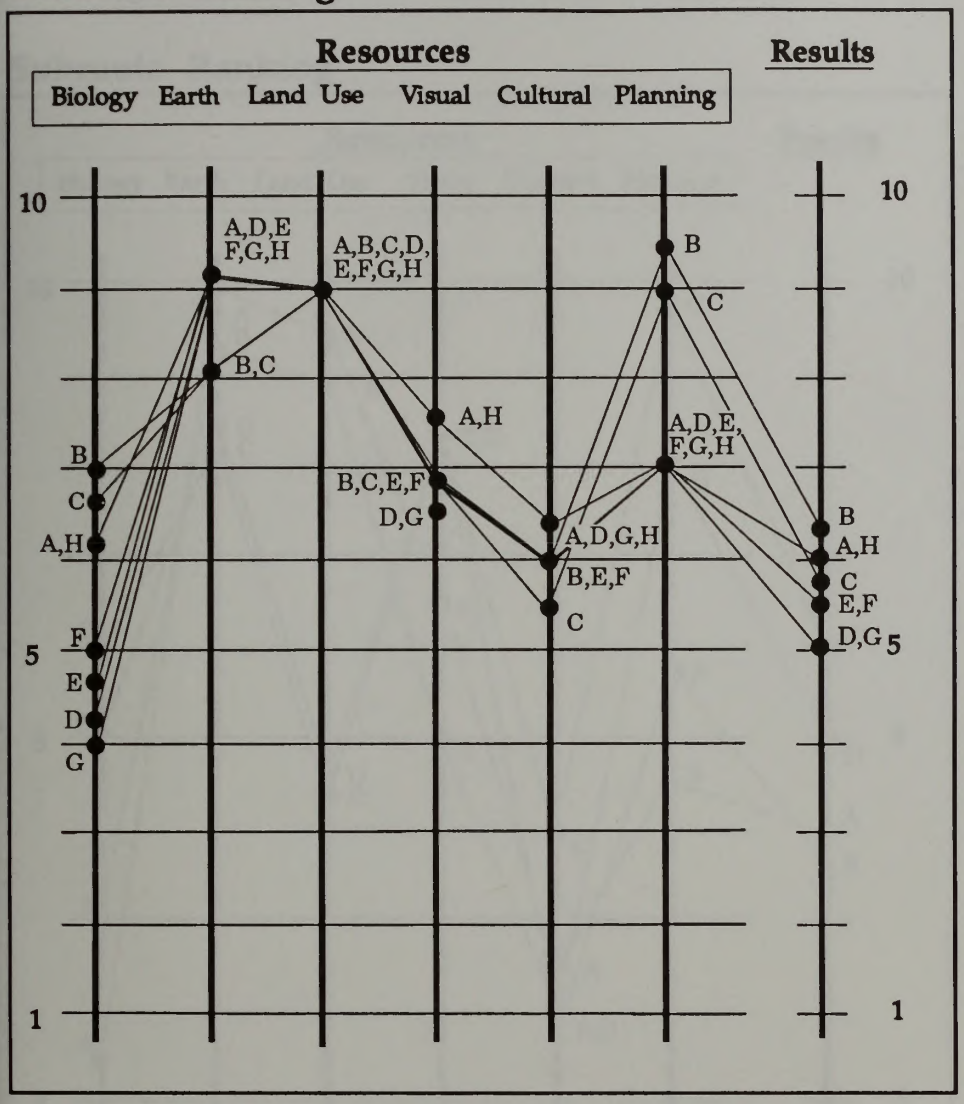
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
2a	62	0.0	0.0	0.0	5.1	0.1	0.0	3.3	0.0	0.0	4.2	1.0	0.0	2.6	2.2	0.8	0.1	Dickey Bird Lane, parallels existing lines
2b	63	0.0	0.0	0.0	3.6	0.1	0.0	2.5	0.0	0.0	2.6	1.1	0.0	0.7	2.3	0.7	1.7	Visual Impacts to Hagerman Fossil Beds National Monument

Subroute Evaluation Form

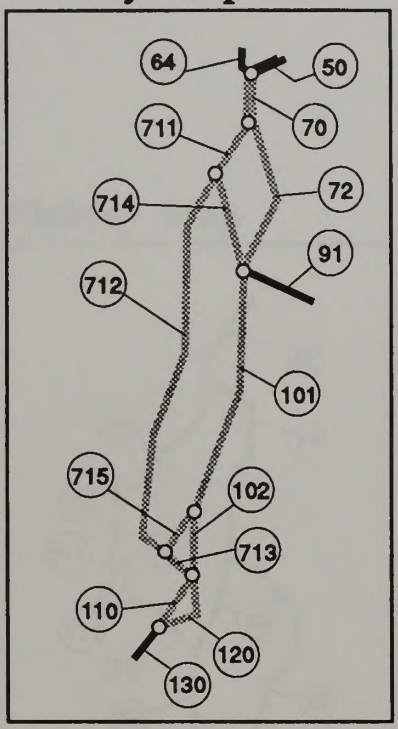


Subroute Ranking



Subroute Set 3

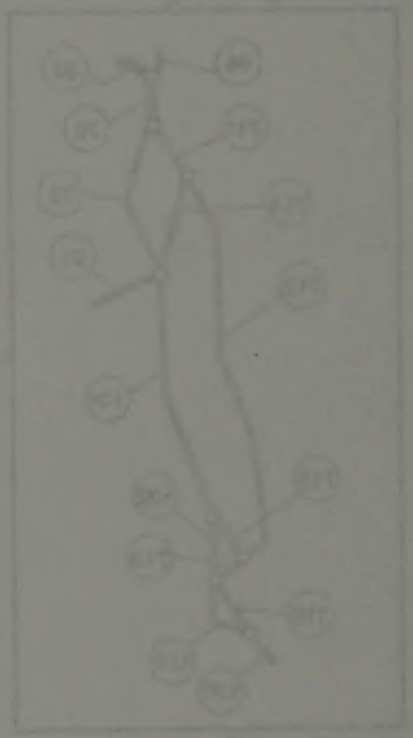
Vicinity Map

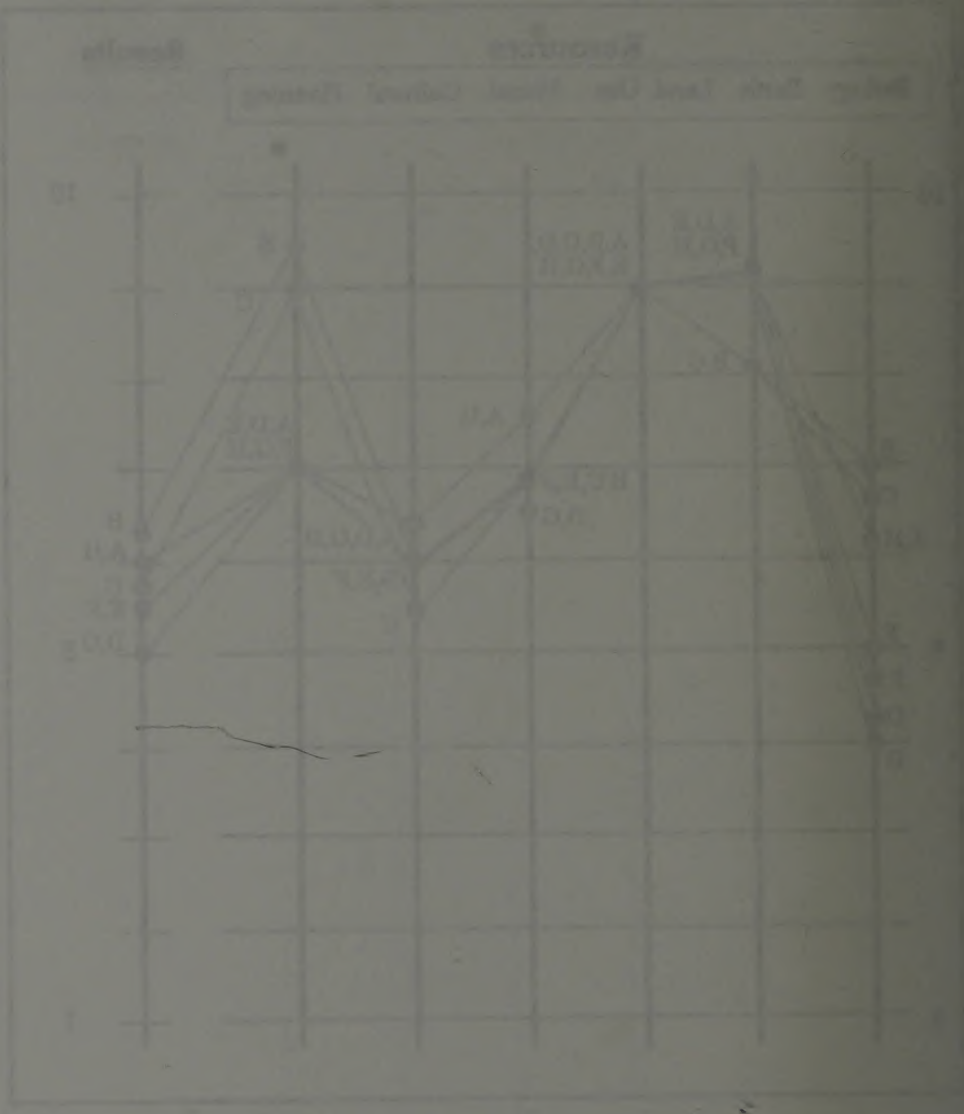


Impact Summary Table

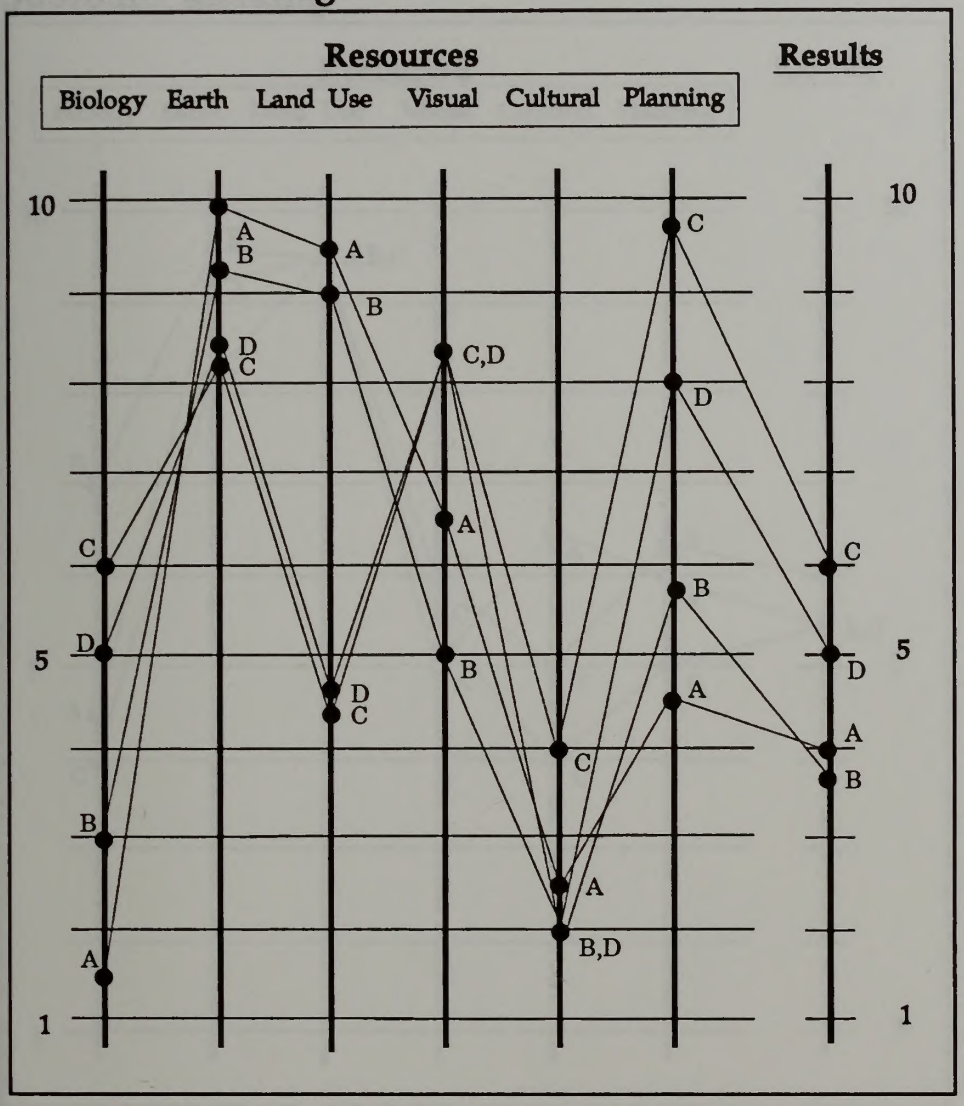
Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
3a	70,711,712, 713,110	7.7	17.2	0.8	24.8	0.6	0.0	7.0	0.0	0.0	4.6	3.2	0.8	16.0	7.9	1.7	3.8	crosses sage grouse habitat
3b	70,72,101, 102,110	15.5	8.9	0.9	23.6	1.2	0.0	7.4	0.0	0.0	6.8	6.6	0.6	11.2	11.8	1.9	3.2	parallels existing lines
3c	70,72,101, 102,120	15.2	9.5	1.0	24.0	1.2	0.0	7.4	0.0	0.0	6.9	6.9	0.6	12.4	11.0	1.9	3.2	
3d	70,711,714,101, 715,713,110	13.9	8.1	3.8	24.6	0.6	0.0	7.0	0.0	0.0	8.5	4.9	0.8	10.2	12.8	2.3	3.7	crosses sage grouse leks
3e	70,711,714,101, 102,120	13.2	8.9	3.7	24.5	0.6	0.0	7.0	0.0	0.0	6.9	6.4	0.8	12.6	10.7	1.9	3.7	crosses sage grouse leks
3f	70,711,714,101, 102,110	13.5	8.3	3.6	24.1	0.6	0.0	7.0	0.0	0.0	6.8	6.1	0.8	11.4	11.5	1.9	3.7	crosses sage grouse leks
3g	70,711,714,101, 715,713,120	13.6	8.7	3.9	25.0	0.6	0.0	7.0	0.0	0.0	8.6	5.2	0.8	11.4	12.0	2.3	3.7	crosses sage grouse leks
3h	70,711,712, 713,120	7.4	17.8	0.9	25.2	0.6	0.0	7.0	0.0	0.0	4.7	3.5	0.8	17.2	7.1	1.7	3.8	crosses sage grouse habitat

Subroute Evaluation Form



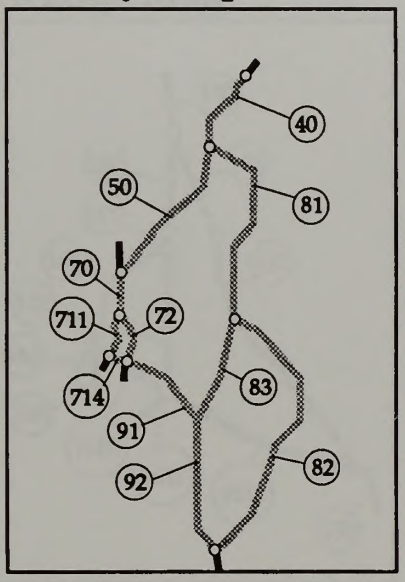


Subroute Ranking



Subroute Set 4

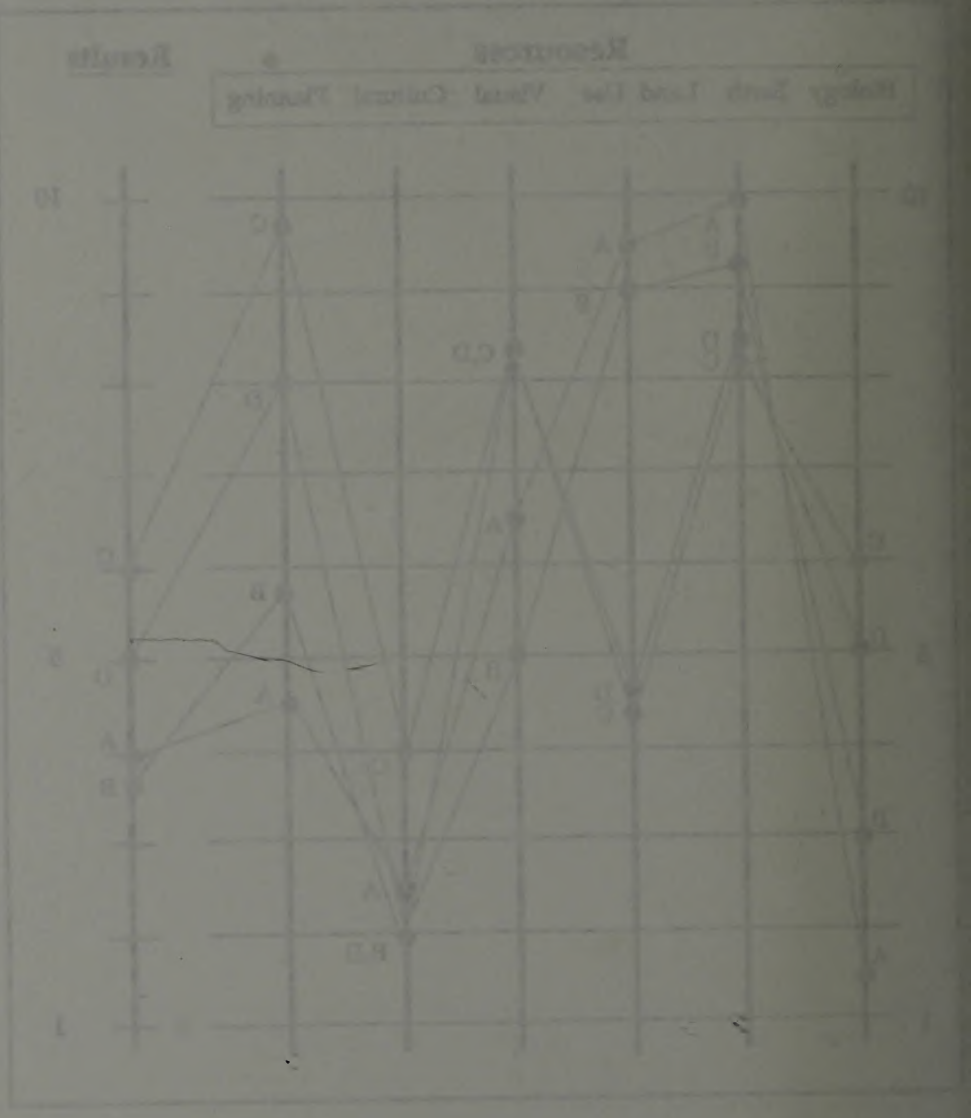
Vicinity Map



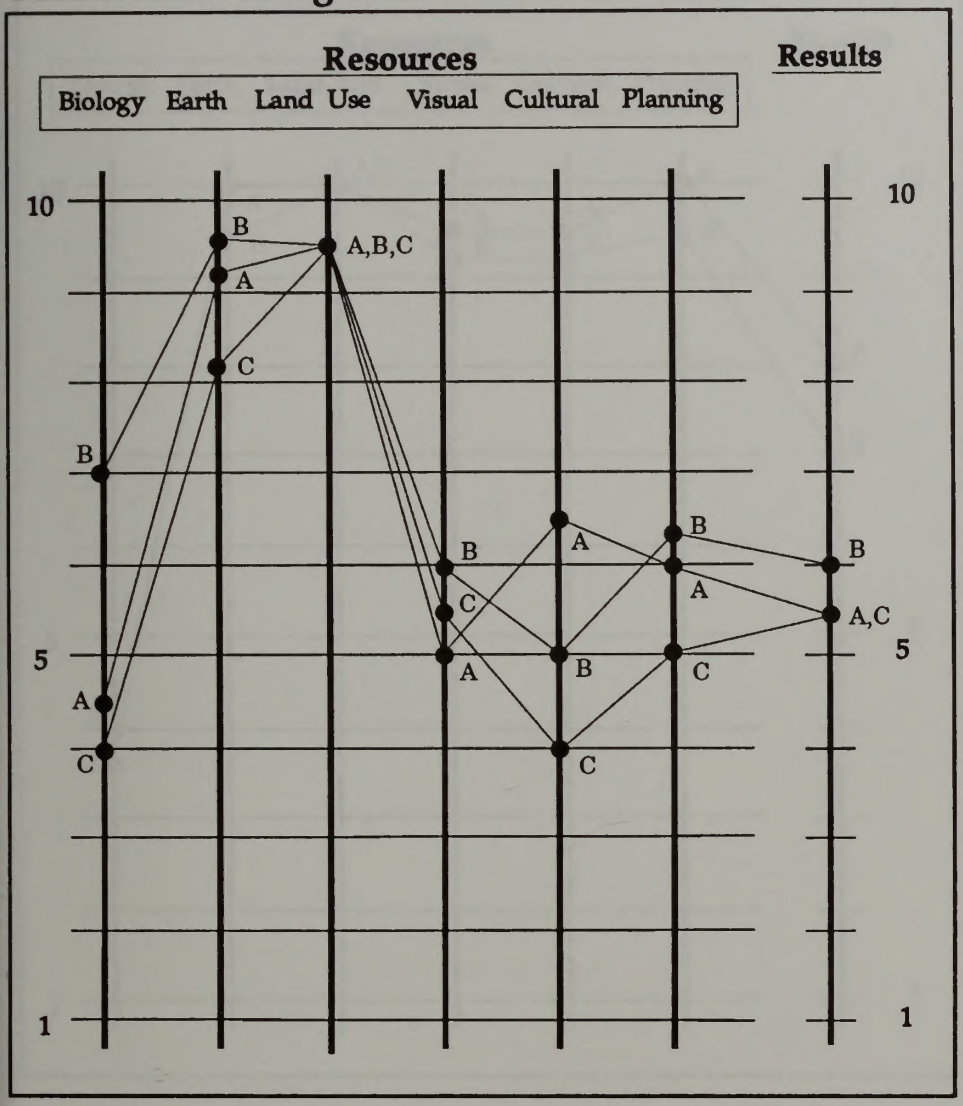
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
4a	40,81,82	18.3	4.4	27.7	54.6	0.8	0.0	0.1	0.0	0.0	13.5	14.6	2.0	41.2	9.5	5.3	1.2	Highest sage grouse impacts
4b	40,81,83,92	18.3	5.1	20.0	49.1	1.2	0.0	0.8	0.0	0.0	12.7	16.9	1.5	33.6	10.1	7.4	1.2	Highest visual impacts High sage grouse impacts
4c	40,50,70, 72,91,92	24.2	9.0	2.5	53.6	2.6	0.0	8.6	0.0	0.0	14.3	12.5	1.3	36.6	15.9	3.9	3.6	Fewest impacts to sage grouse habitat
4d	40,50,70,711 714,91,92	22.2	9.0	5.2	53.8	2.0	0.0	8.2	0.0	0.0	14.3	12.0	1.5	36.8	15.6	3.9	4.1	New crossing of Salmon Falls Creek

Subroute Evaluation Form

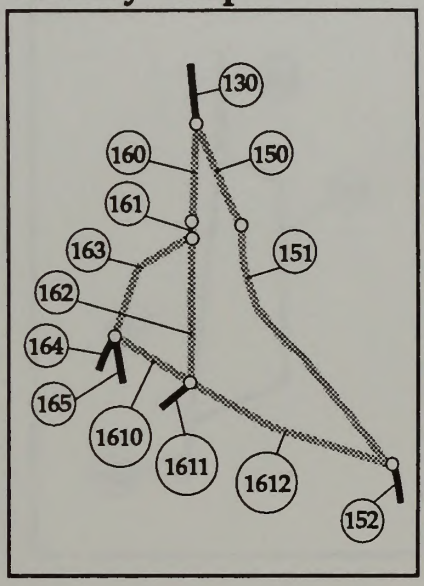


Subroute Ranking



Subroute Set 5

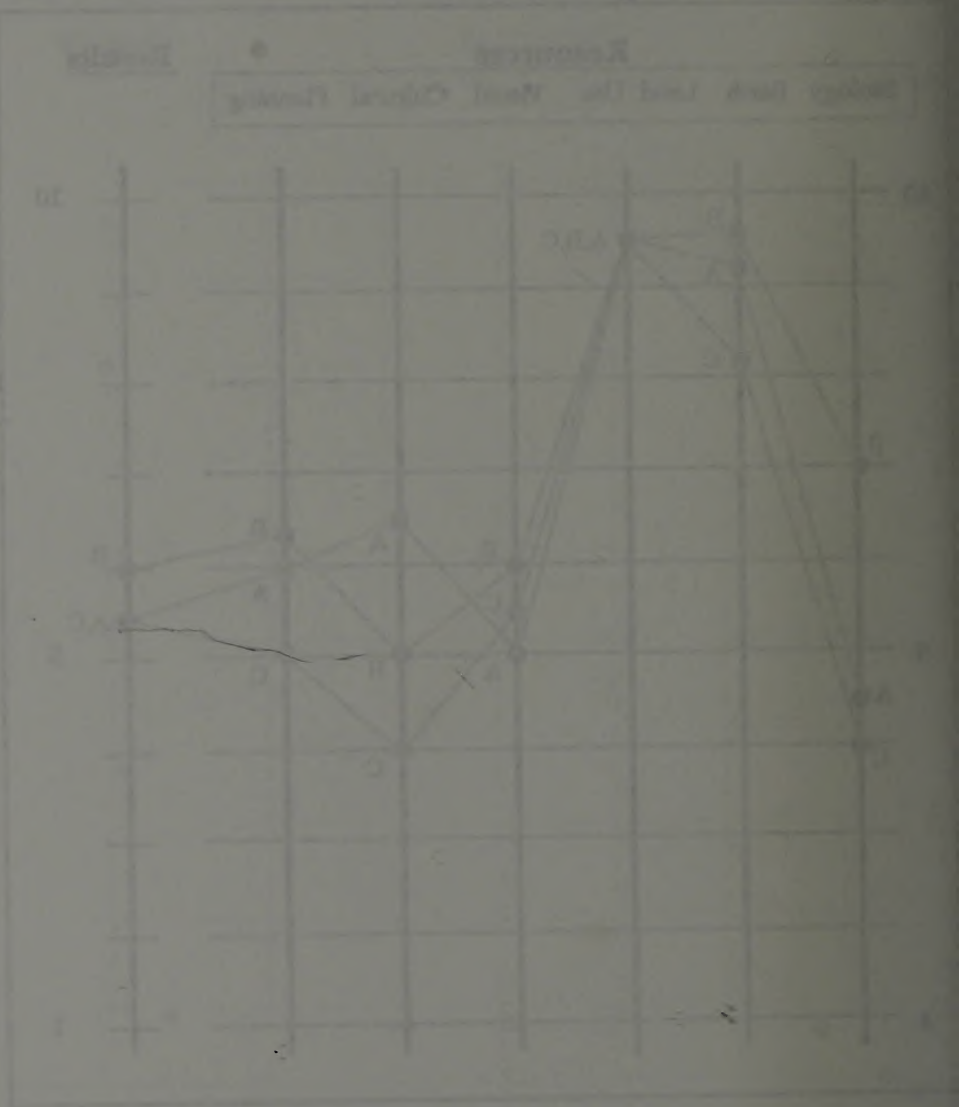
Vicinity Map



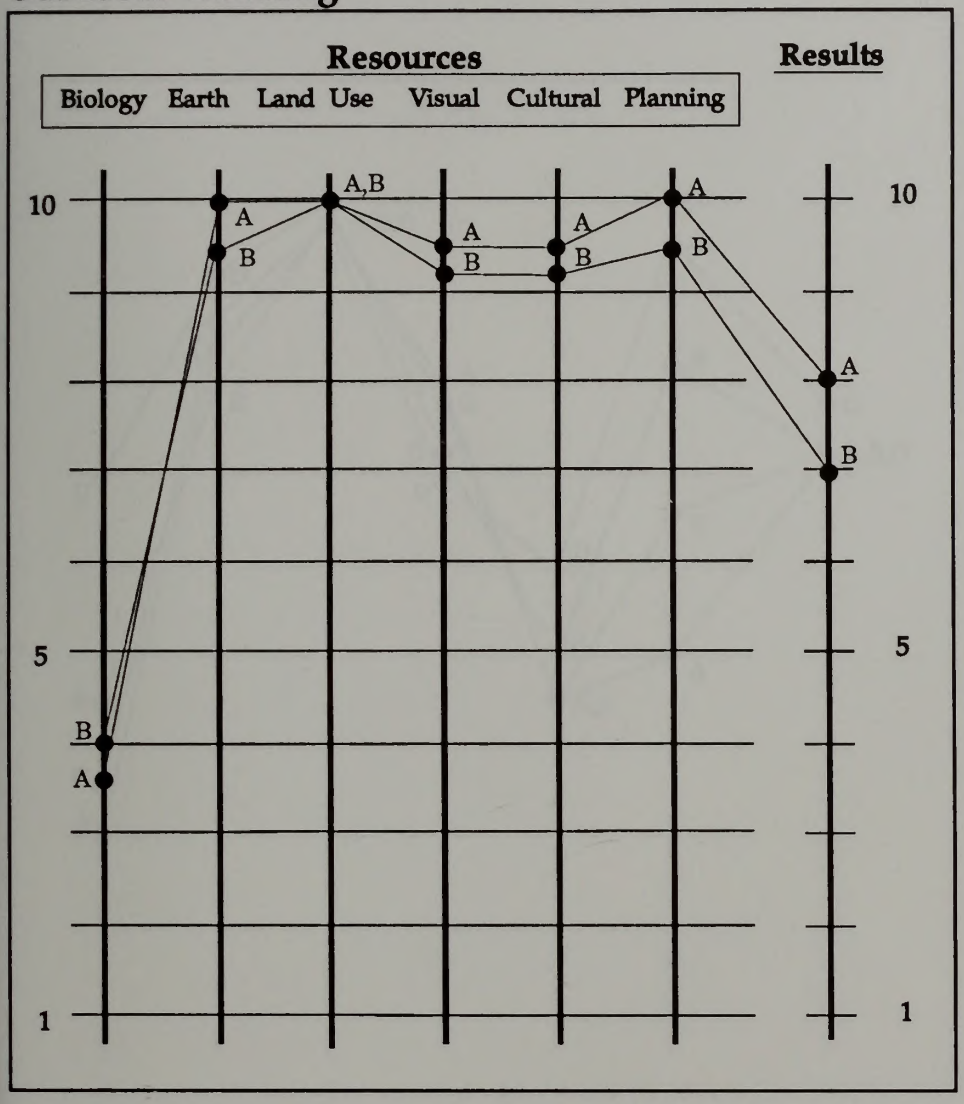
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
5a	150,151	5.0	6.9	3.5	21.6	1.1	0.0	0.1	0.0	0.0	6.0	6.7	0.9	18.7	3.1	1.0	2.4	Passes adjacent to ranch, sage grouse impacts
5b	160,161,162, 1612	15.5	11.2	0.6	26.5	2.3	0.0	0.1	0.0	0.0	10.1	4.4	1.5	22.4	6.4	0.0	2.0	Fewest impacts to sage grouse
5c	160,161,163, 1610,1612	14.8	6.8	1.4	28.0	2.2	0.0	0.1	0.0	0.0	7.9	8.1	1.6	22.3	7.9	0.0	2.3	

Subroute Evaluation Form

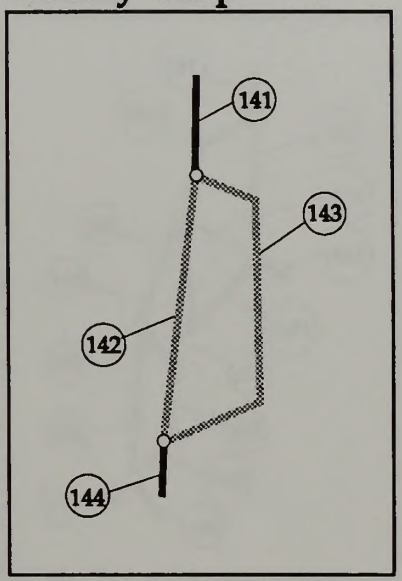


Subroute Ranking



Subroute Set 6

Vicinity Map

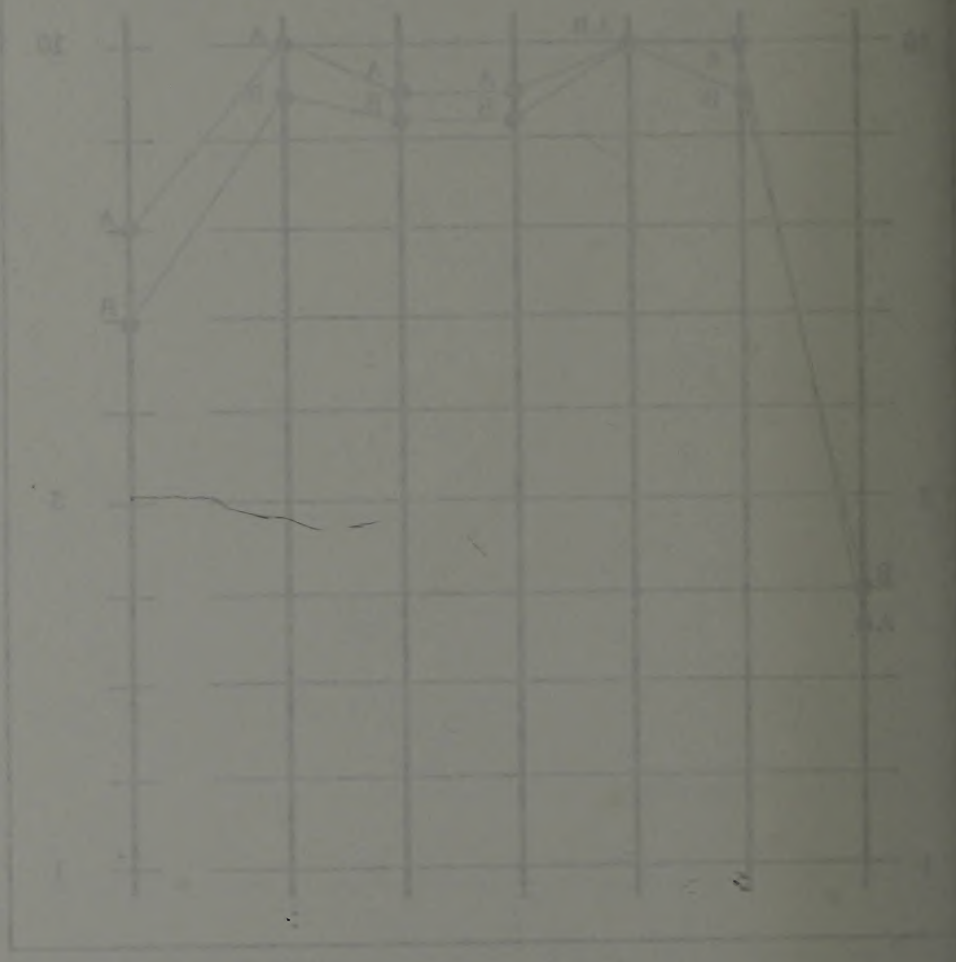


Impact Summary Table

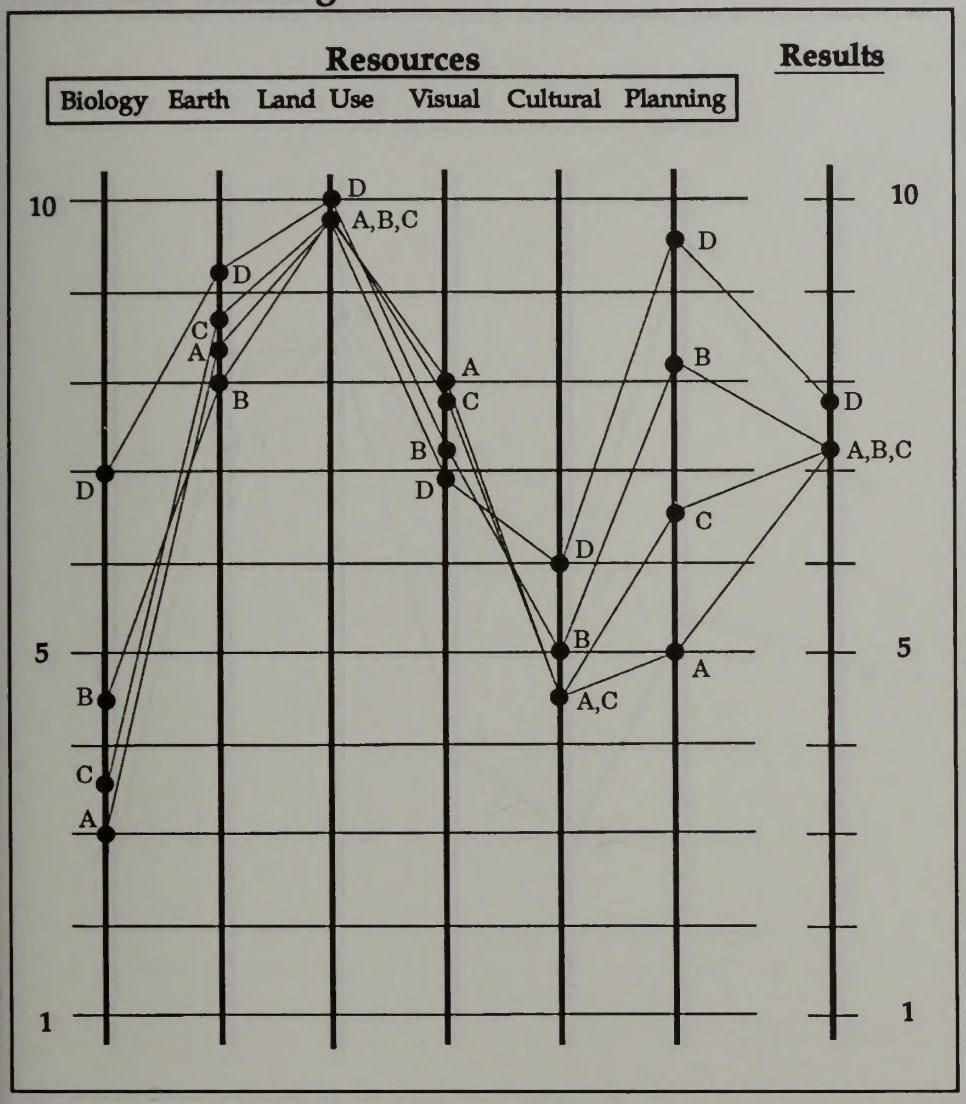
Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
6a	142	0.1	0.3	4.4	8.7	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	6.4	2.5	0.0	0.0	Fewest impacts to sage grouse
6b	143	0.0	0.3	3.1	9.9	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	7.1	2.0	0.9	0.0	High impacts to cultural site

Subroute Evaluation Form

Subroute Set 6

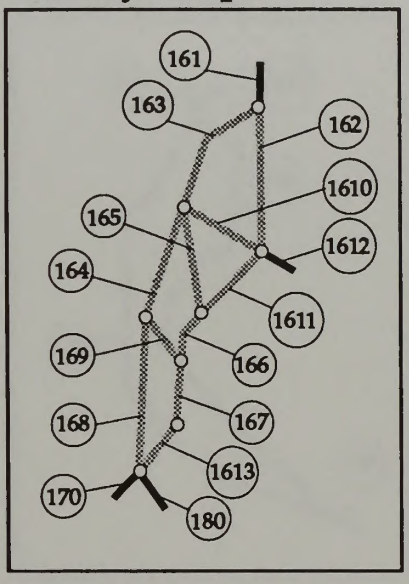


Subroute Ranking



Subroute Set 7

Vicinity Map

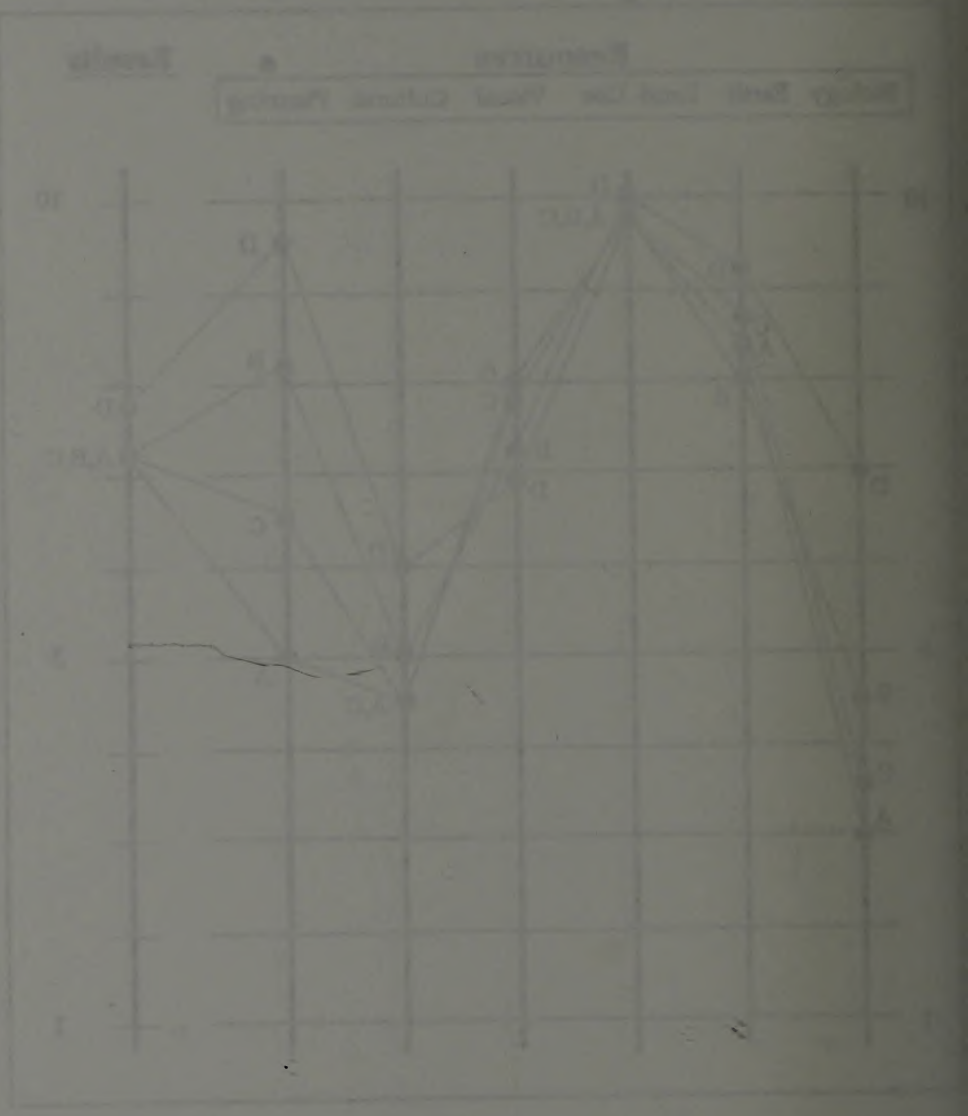


APPENDIX D

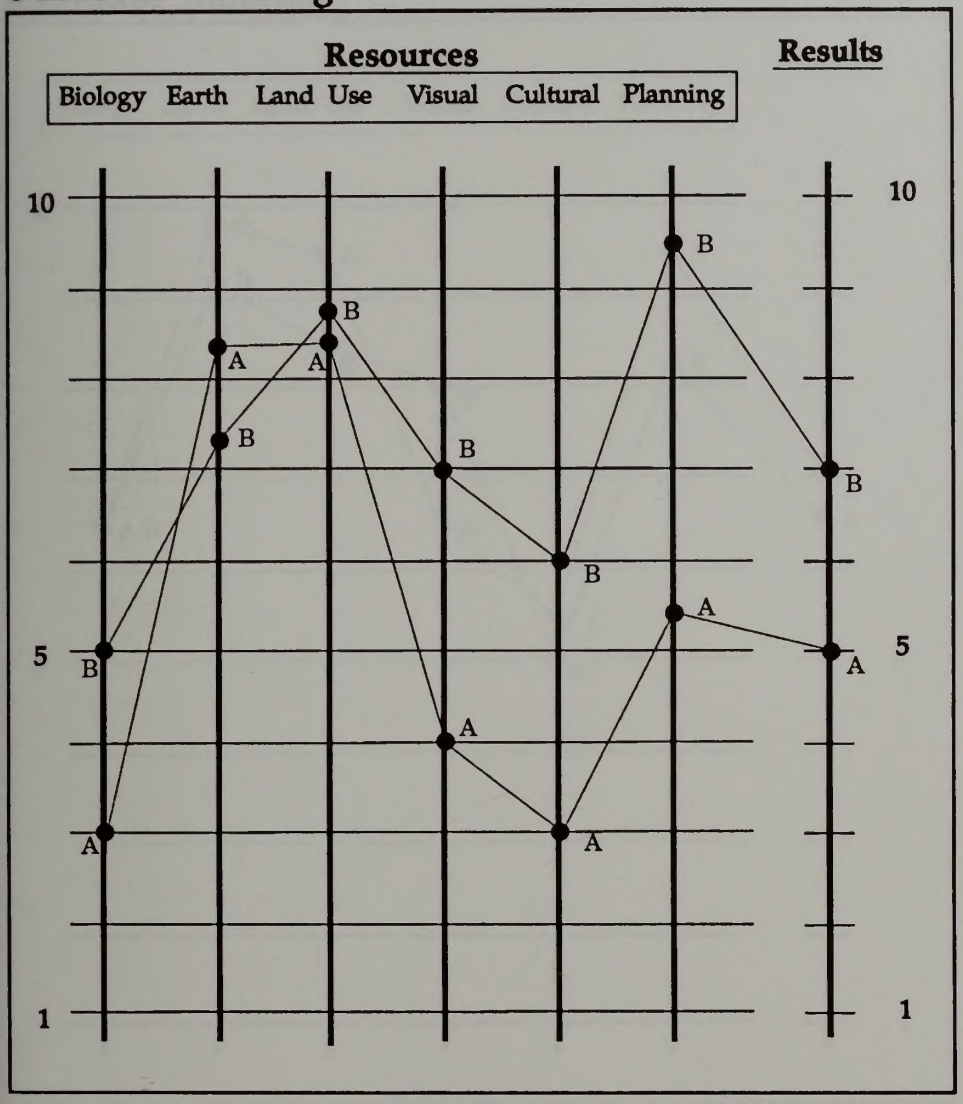
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
7a	163,164,168	3.8	0.4	3.9	19.3	1.3	0.0	0.1	0.0	0.0	7.0	11.7	1.2	17.9	2.7	0.0	0.6	High impacts to sage grouse
7b	163,165,166, 167,1613	4.9	4.1	1.1	19.5	1.3	0.0	0.1	0.0	0.0	5.8	13.2	0.8	18.3	2.5	0.0	3.1	Crosses VRM class III
7c	163,164,169, 167,1613	3.8	2.9	3.6	20.4	1.2	0.0	0.1	0.0	0.0	5.3	14.1	1.2	18.5	3.1	0.0	0.7	Higher impacts to sage grouse
7d	162,1611,166, 167,1613	9.0	8.7	0.3	20.0	0.8	0.0	0.1	0.0	0.0	8.5	10.4	0.7	19.8	1.0	0.0	4.7	Parallels existing 138kV transmission lines, crosses VRM Class III

Subroute Evaluation Form

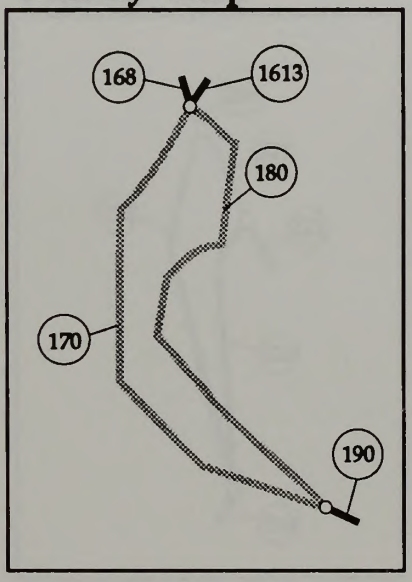


Subroute Ranking



Subroute Set 8

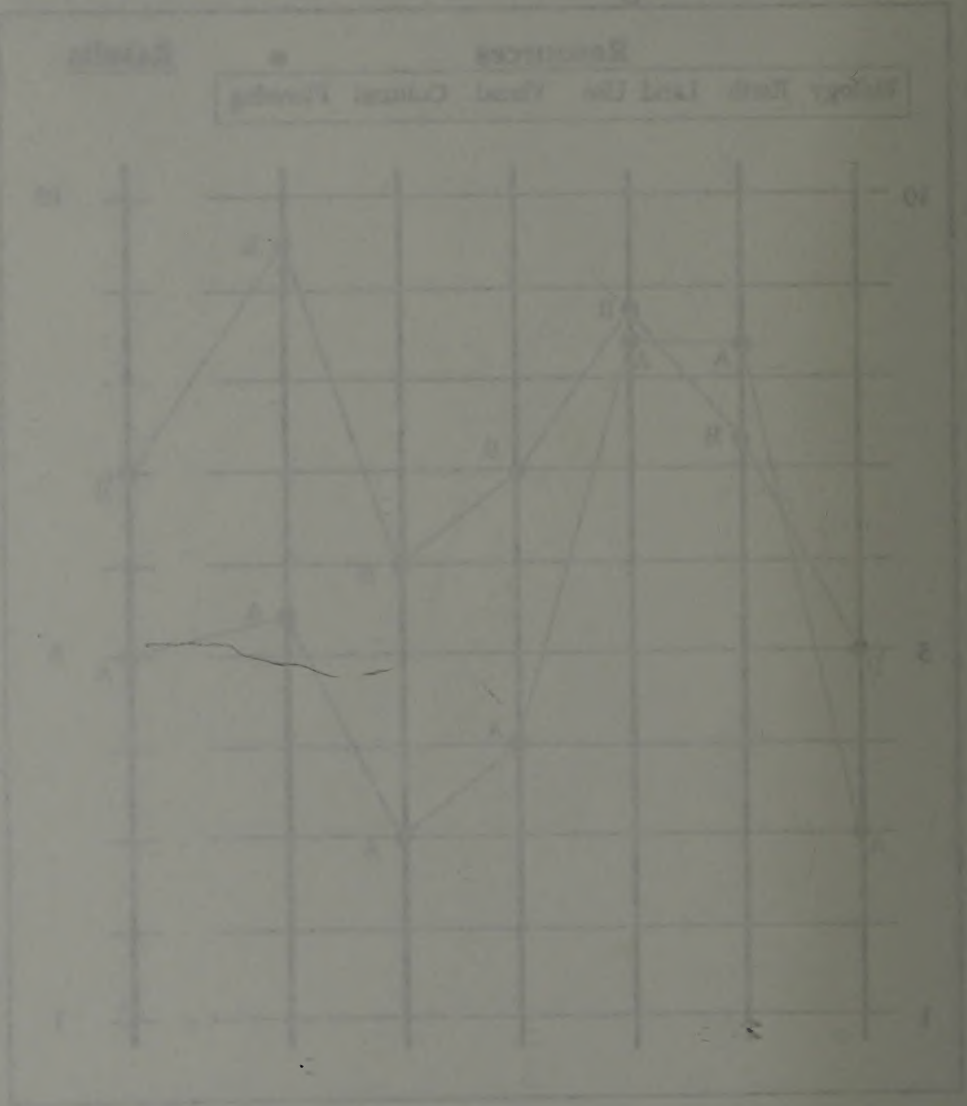
Vicinity Map



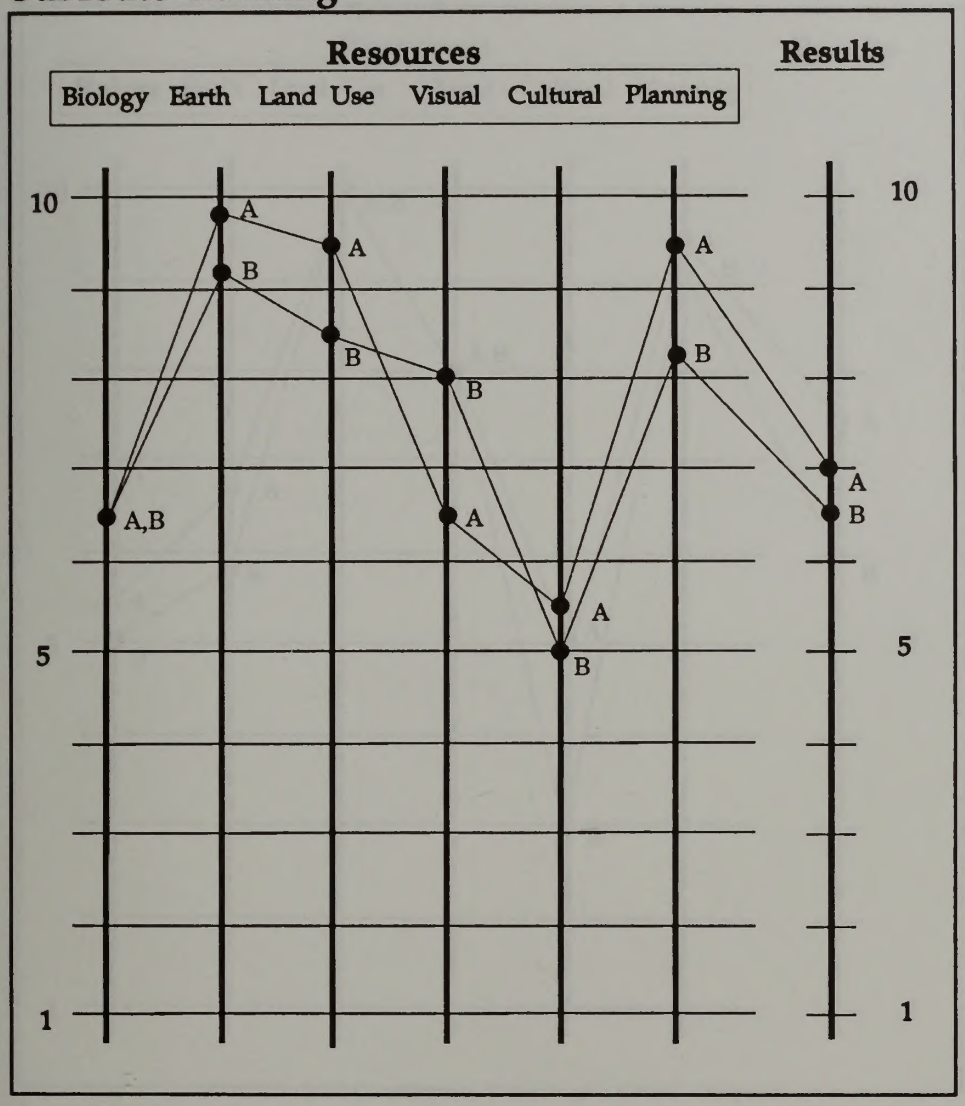
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
8a	170	25.0	1.6	3.6	32.7	1.1	0.0	0.5	0.0	0.0	10.0	18.1	1.0	23.2	8.8	2.0	3.9	
8b	180	8.1	0.0	1.1	28.4	2.3	0.0	0.1	0.0	0.0	17.4	2.5	0.5	27.6	2.7	0.4	5.3	Avoids Wells, NV

Subroute Evaluation Form

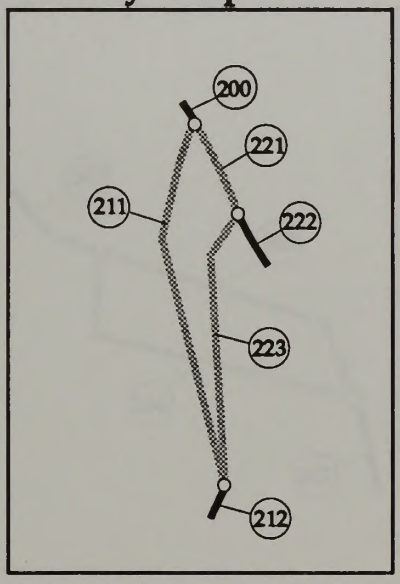


Subroute Ranking



Subroute Set 9

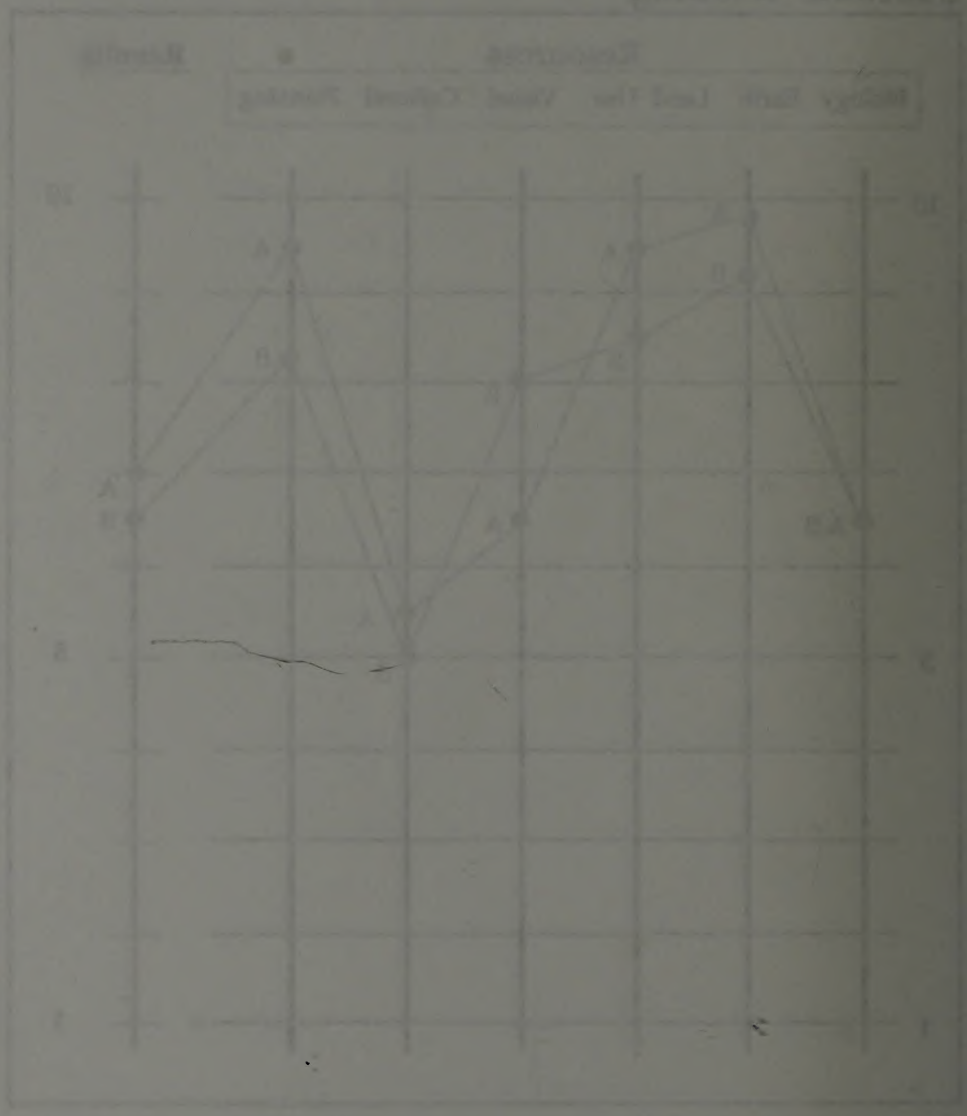
Vicinity Map



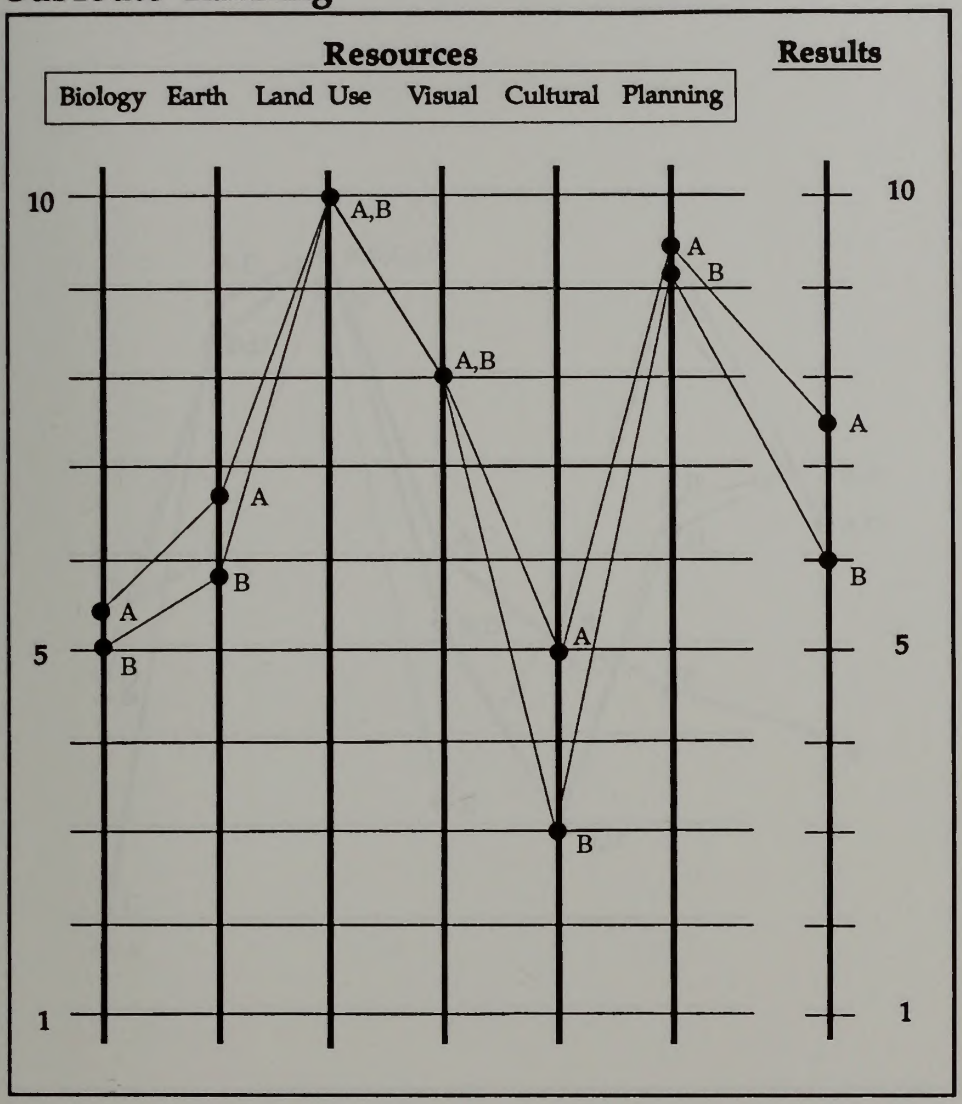
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
9a	211	0.0	0.0	1.6	17.6	0.0	0.0	0.8	0.0	0.0	7.1	0.9	0.3	15.1	2.5	0.0	5.8	Better crossing of I-80, closer to ranch
9b	221,223	0.1	0.0	1.5	17.5	0.1	0.0	16.2	0.0	0.0	10.8	1.0	0.4	16.7	0.9	0.0	4.4	Utilizes railroad corridor

Subroute Evaluation Form

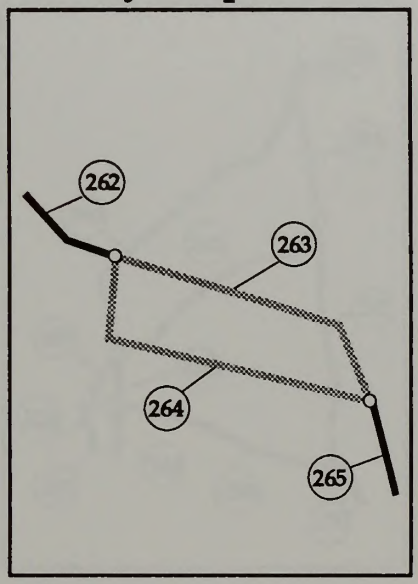


Subroute Ranking



Subroute Set 10

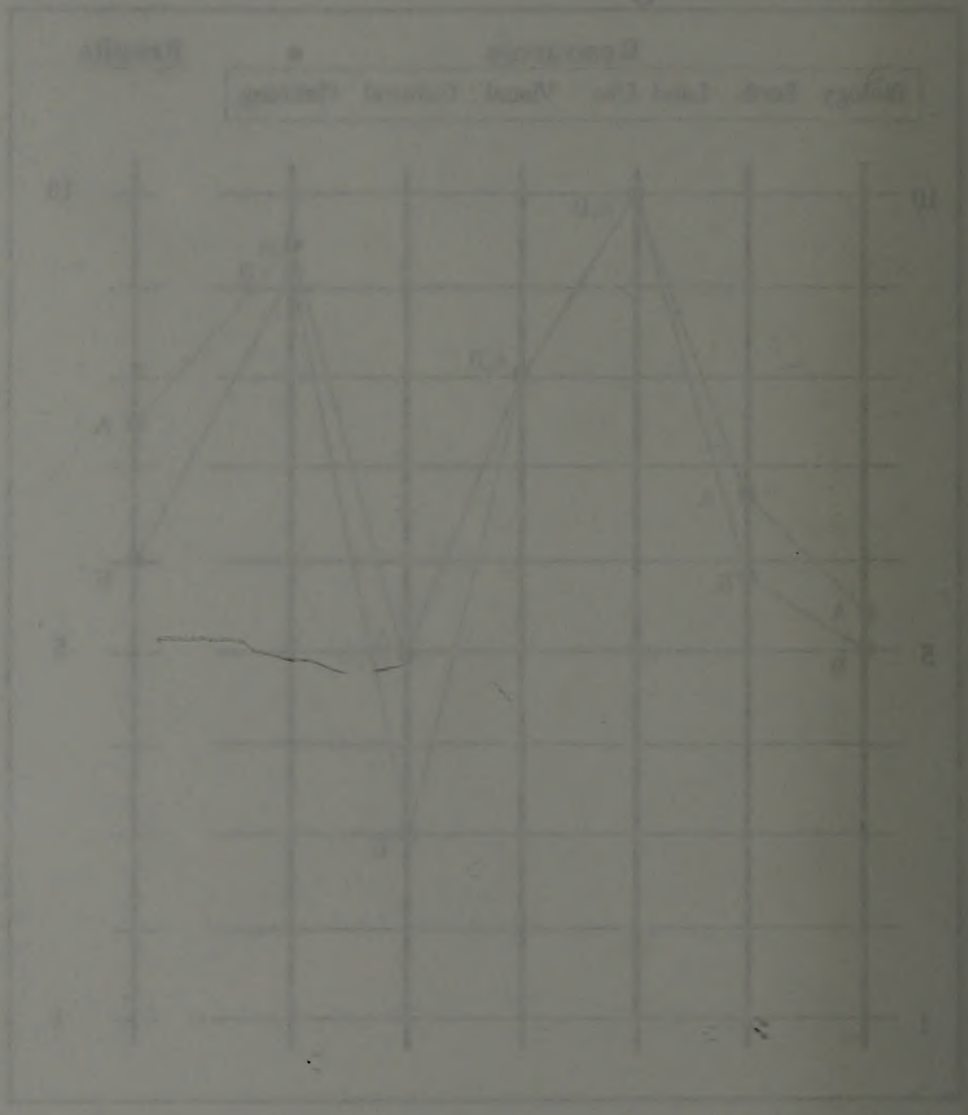
Vicinity Map



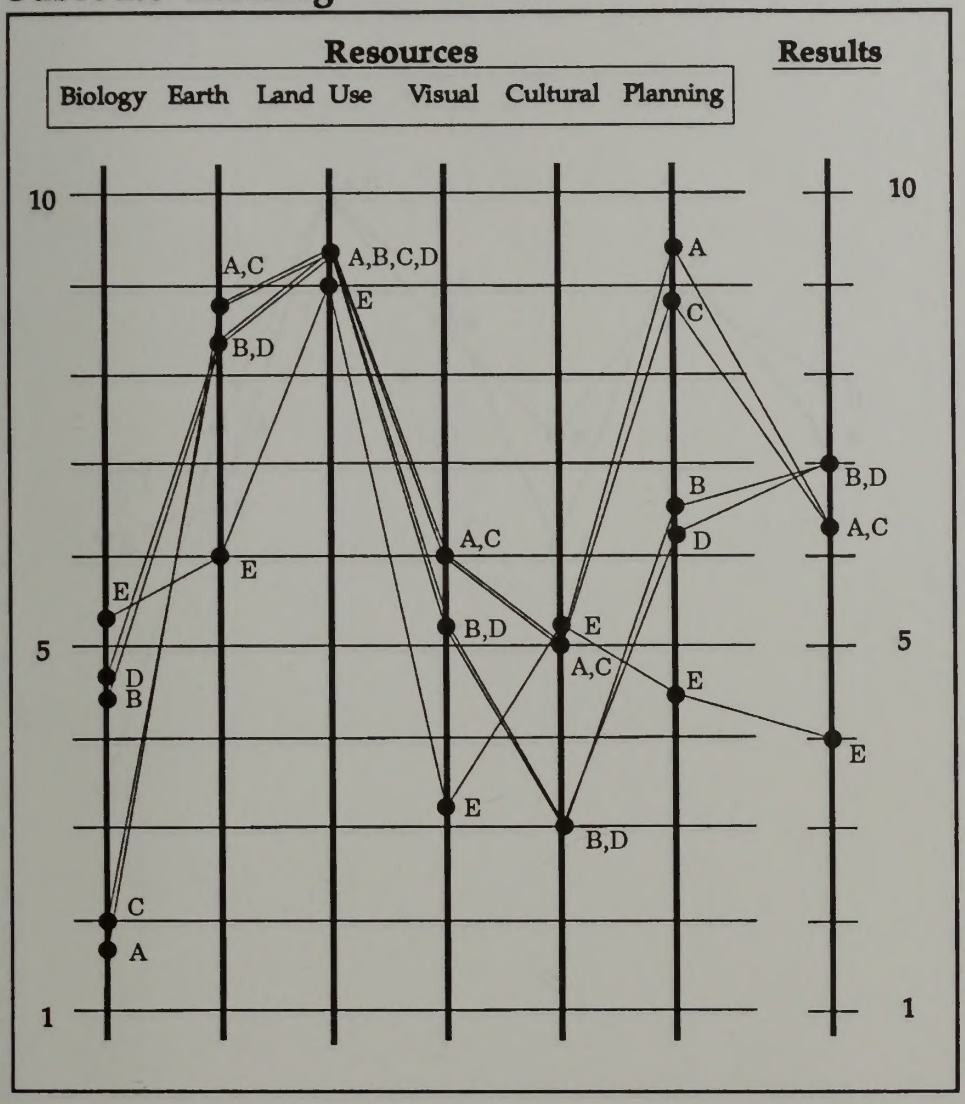
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
10a	263	3.3	0.2	1.1	6.5	3.1	0.0	0.0	0.0	0.0	4.3	2.7	3.2	9.6	0.0	0.0	0.0	Lower impacts
10b	264	5.7	0.3	1.4	6.4	4.0	0.0	0.0	0.0	0.0	1.6	5.3	3.9	10.4	0.0	0.0	0.0	

Subroute Evaluation Form

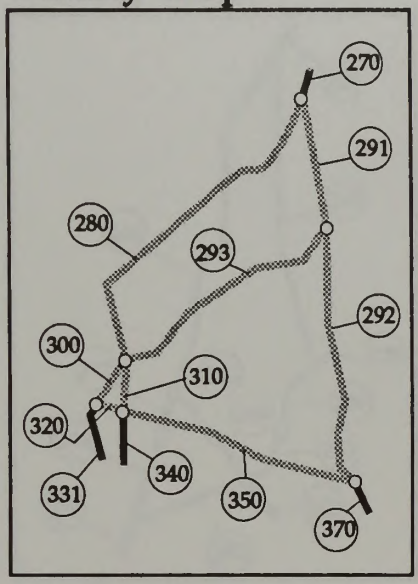


Subroute Ranking



Subroute Set 11

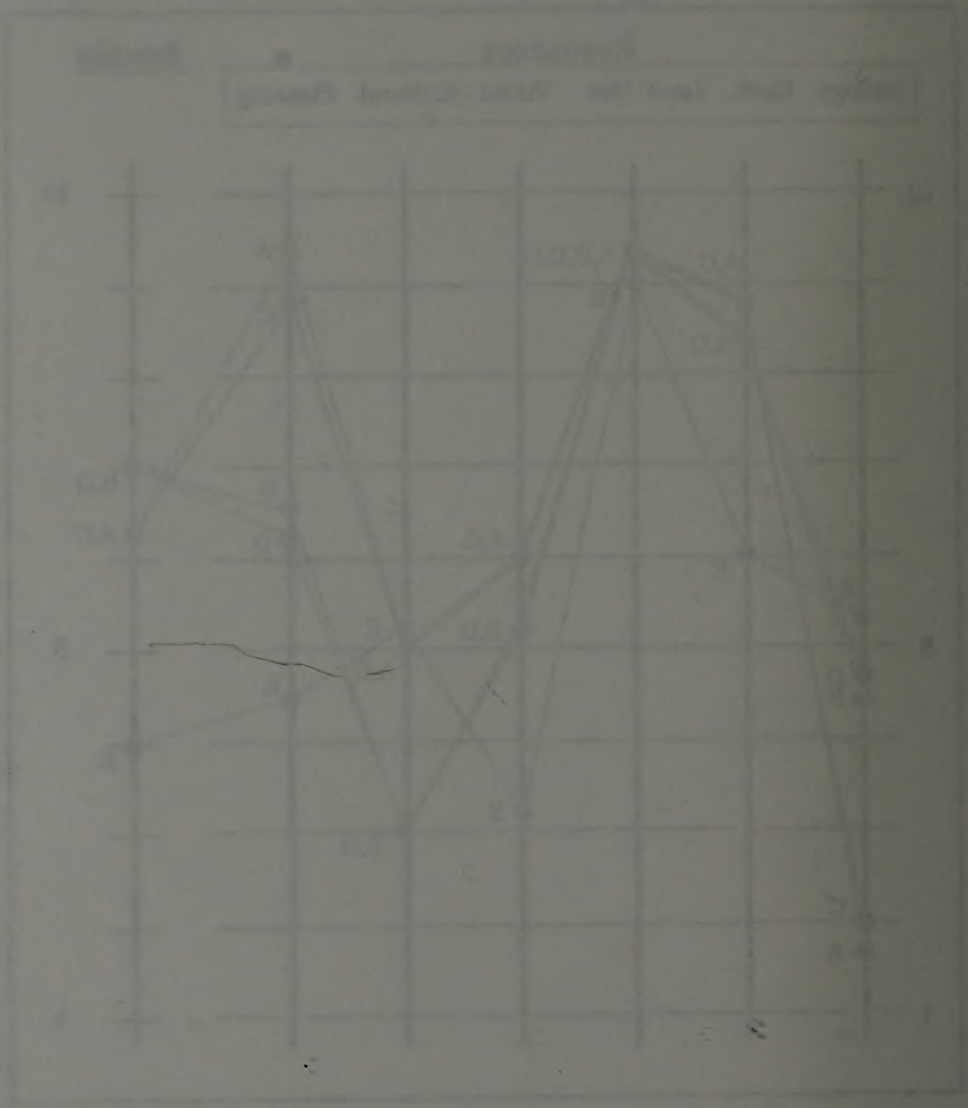
Vicinity Map



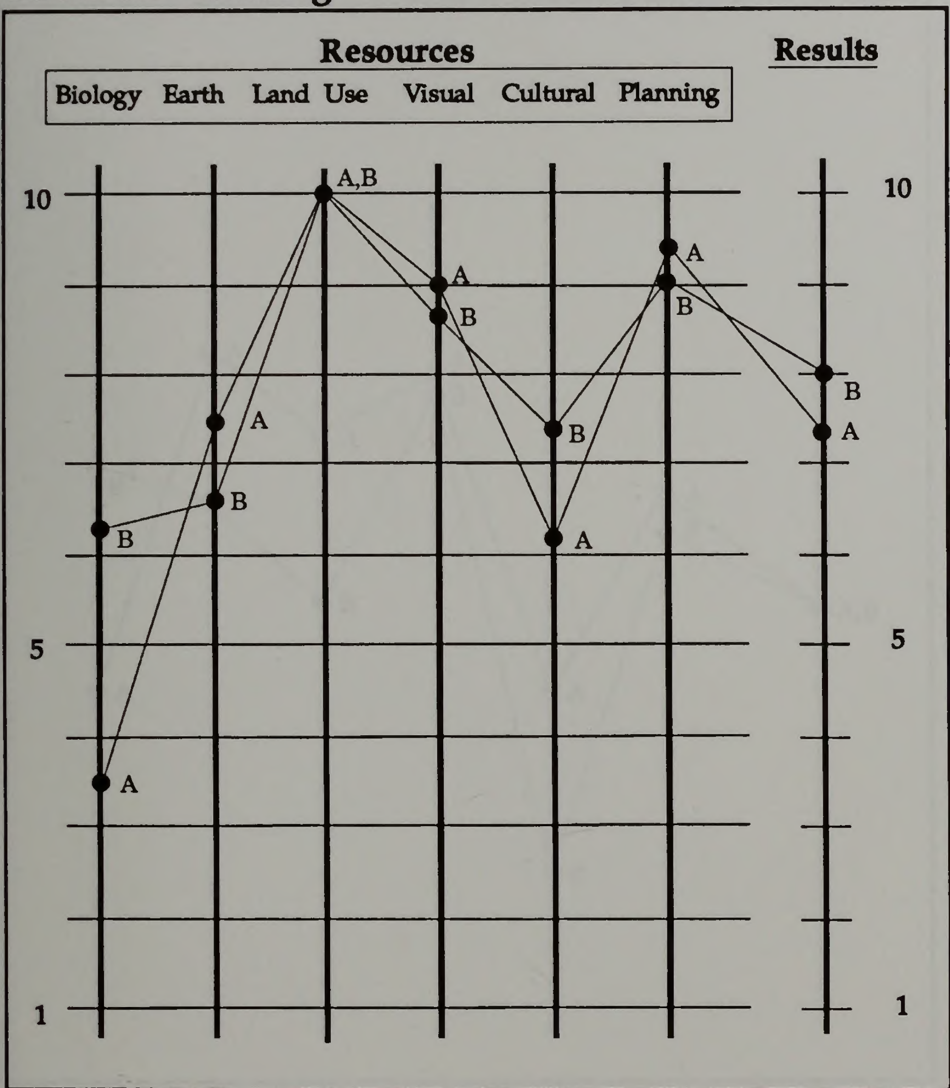
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
11a	280,300	16.5	4.8	12.8	34.3	5.0	0.0	0.0	0.0	0.0	17.4	8.1	1.6	38.8	0.5	0.0	0.0	Uses Antone Pass
11b	291,293,300	17.0	2.3	9.8	31.8	7.2	0.0	0.0	0.0	0.0	16.7	15.0	1.1	37.1	3.7	0.0	0.0	
11c	280,310	17.4	3.7	12.8	33.9	5.3	0.0	0.0	0.0	0.0	17.4	7.6	1.6	38.7	0.5	0.0	0.0	Uses Antone Pass
11d	291,293,310	17.9	1.2	9.8	31.4	7.5	0.0	0.0	0.0	0.0	16.7	14.5	1.1	37.0	3.7	0.0	0.0	
11e	291,292,350	29.4	3.8	9.0	38.8	10.9	0.7	0.1	0.0	0.0	31.2	17.5	0.9	37.3	12.9	0.8	0.0	Crosses wetlands at Bassett Lake passes near residences

Subroute Evaluation Form

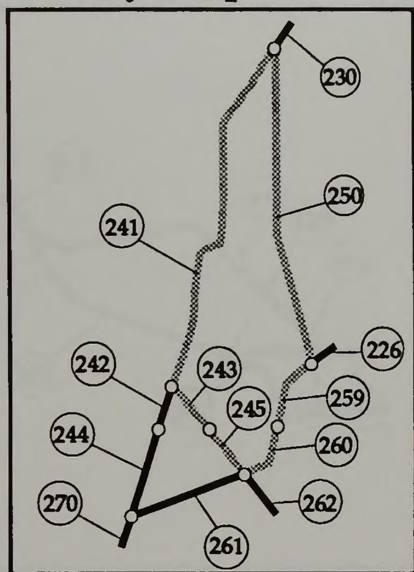


Subroute Ranking



Subroute Set 12

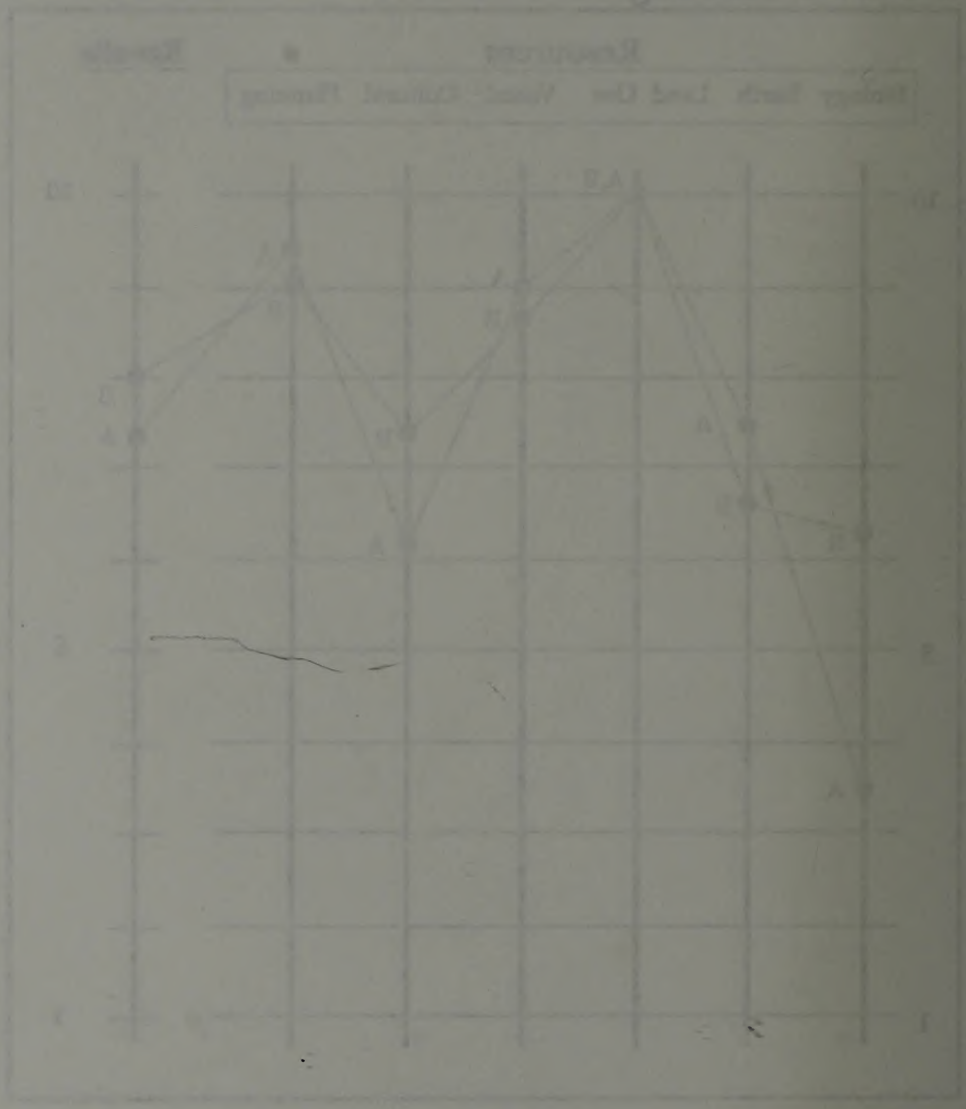
Vicinity Map



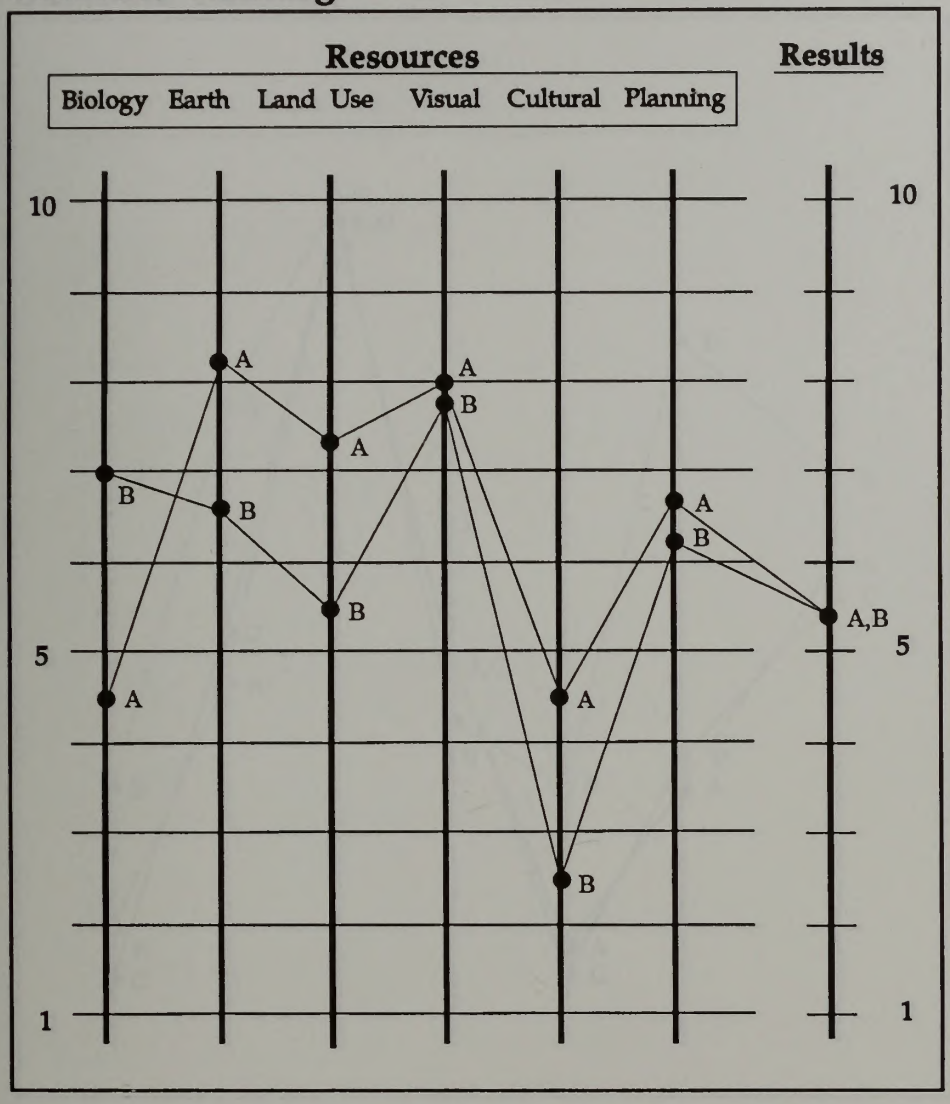
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
12a	241,243,245	19.7	10.1	1.2	31.2	2.6	0.0	0.0	0.0	0.0	7.8	13.0	0.3	32.5	1.8	0.0	0.0	Cultural site, impacts to pronghorn antelope, l.b. curlew & sandhill crane
12b	250,259,260	16.8	1.6	0.2	27.8	4.4	0.0	0.0	0.0	0.0	5.3	5.6	0.0	33.2	2.1	0.0	0.0	

Subroute Evaluation Form

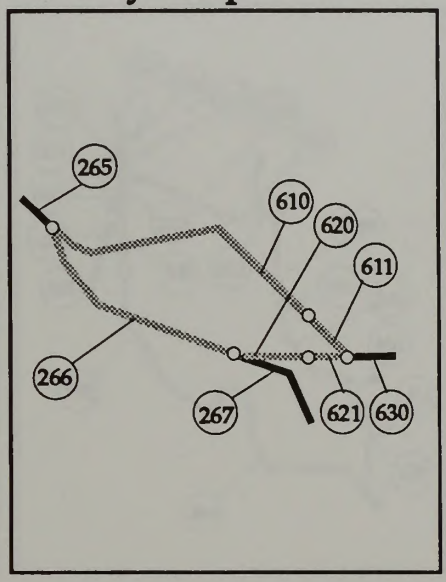


Subroute Ranking



Subroute Set 13

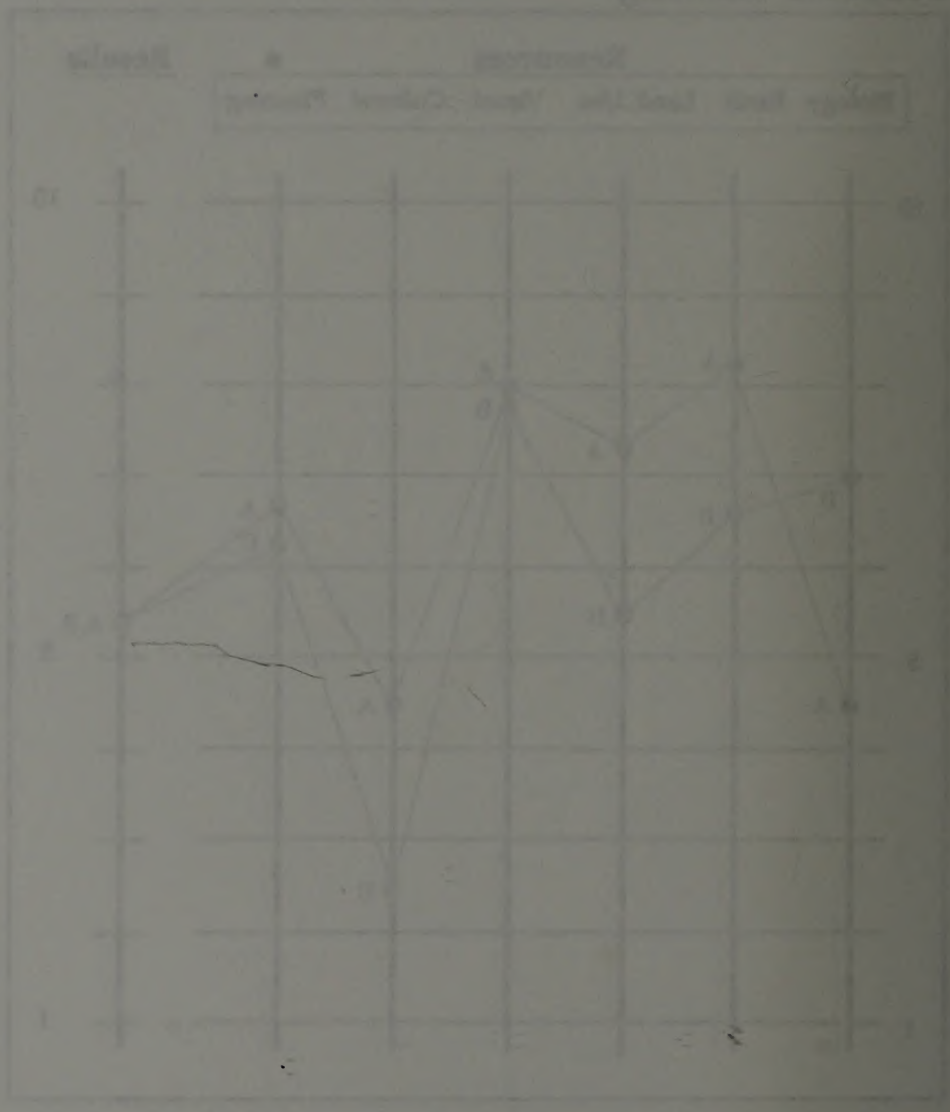
Vicinity Map



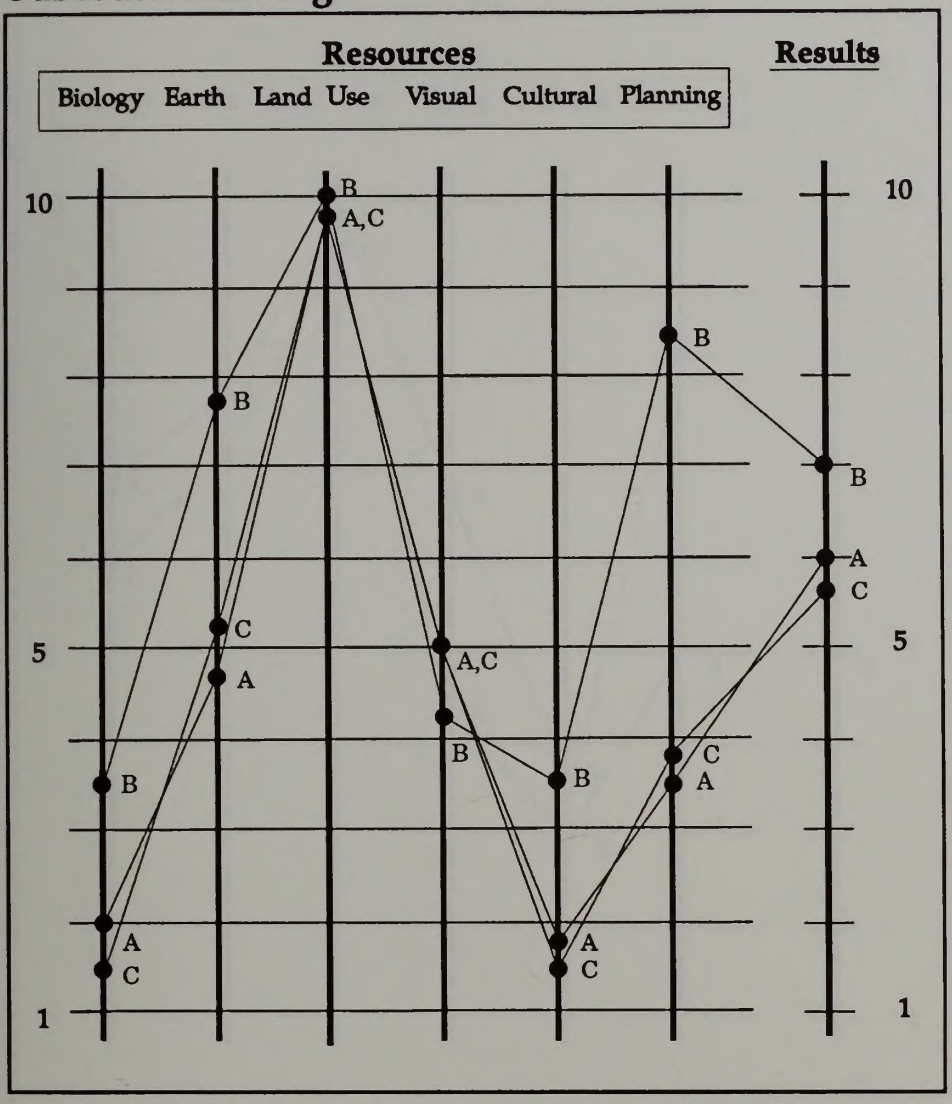
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
13a	266,620,621	10.2	3.6	4.7	29.5	6.5	0.0	21.9	8.4	0.0	2.9	6.8	0.7	36.0	0.0	0.0	0.0	Bald eagle and sage grouse
13b	610,611	12.6	0.0	0.0	23.7	12.7	0.0	14.3	18.9	0.0	7.2	13.6	1.0	36.4	0.0	0.0	0.0	BLM concerns for Blue Mass Scenic Area

Subroute Evaluation Form

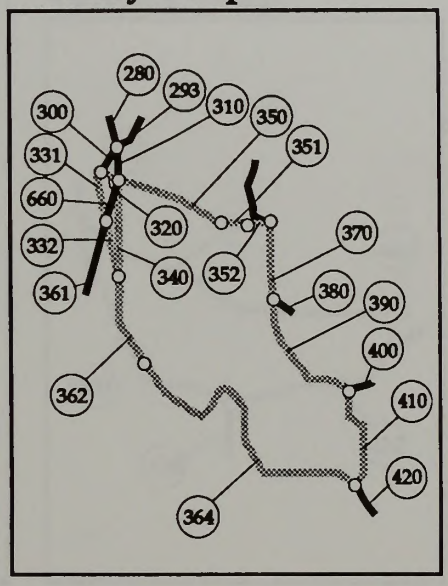


Subroute Ranking



Subroute Set 14

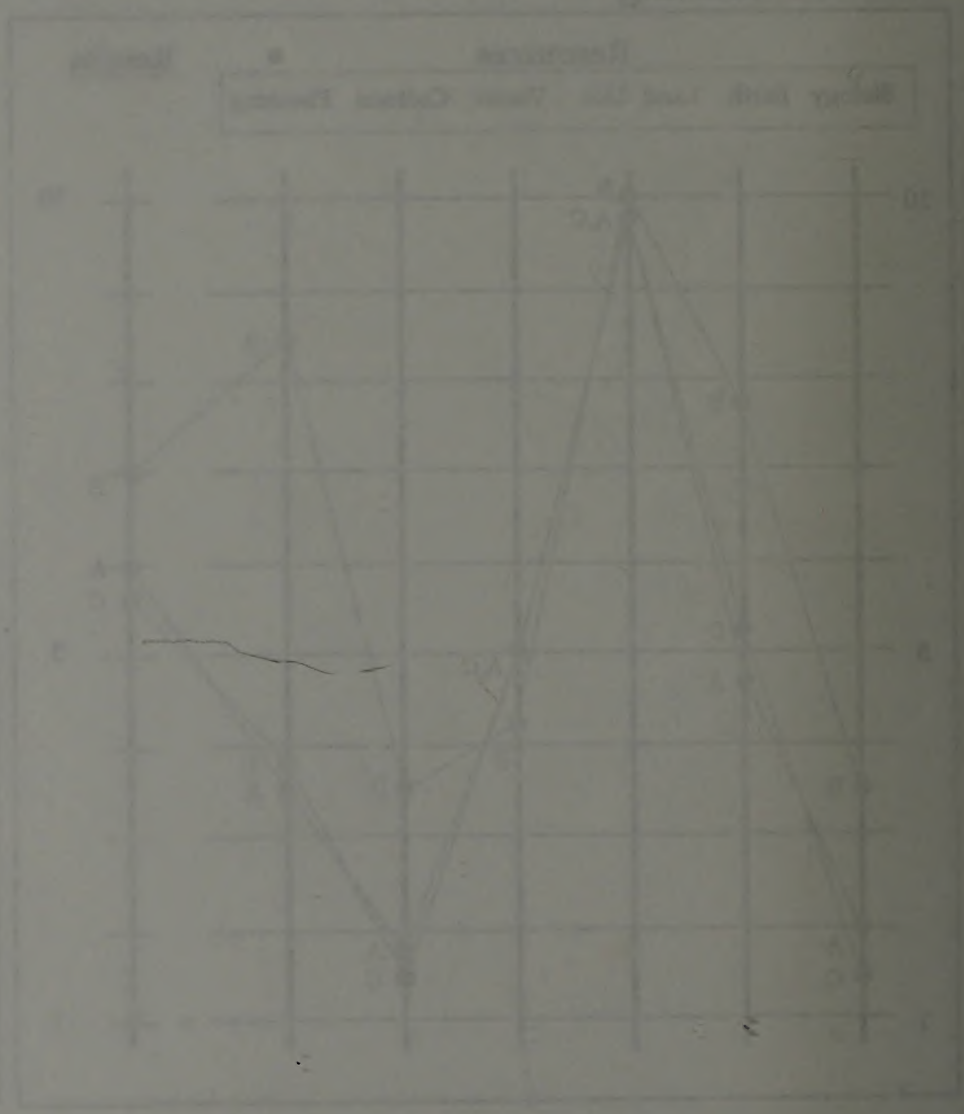
Vicinity Map



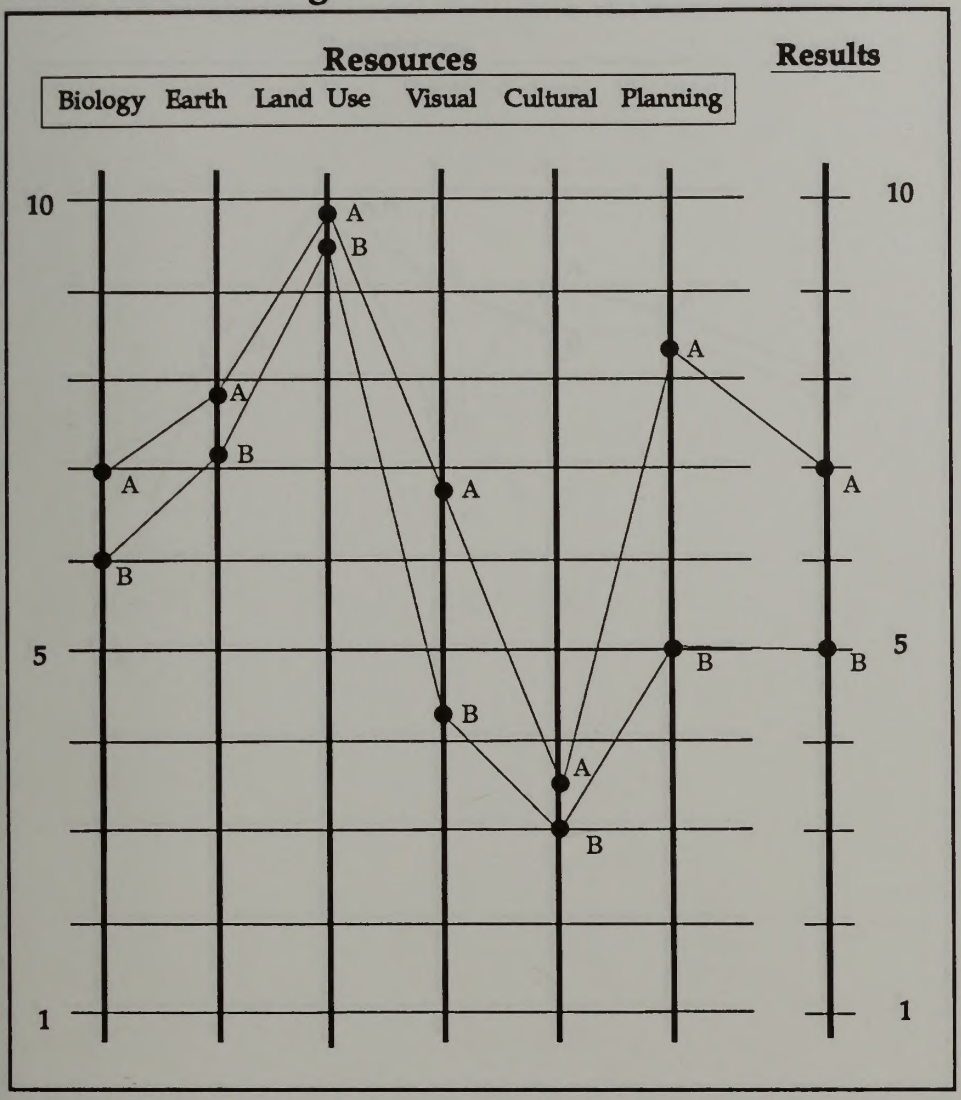
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
14a	340,362,364	22.7	1.5	10.3	44.9	15.7	0.0	0.5	0.0	0.0	18.1	22.0	10.8	79.2	8.3	3.2	2.0	High potential for cultural sites, passes through Water Canyon
14b	320,350,351,352, 370,390,410	44.9	8.8	2.6	57.6	7.9	0.0	0.2	0.0	0.0	31.8	26.5	4.9	45.9	16.5	3.3	0.0	Parallels existing 230kV transmission lines
14c	331,332,362, 364	21.9	3.5	10.3	47.3	14.0	0.0	0.5	0.0	0.0	18.2	22.3	10.8	52.4	8.3	3.2	2.0	High potential for cultural sites, ferruginous hawks, passes through Water Canyon

Subroute Evaluation Form

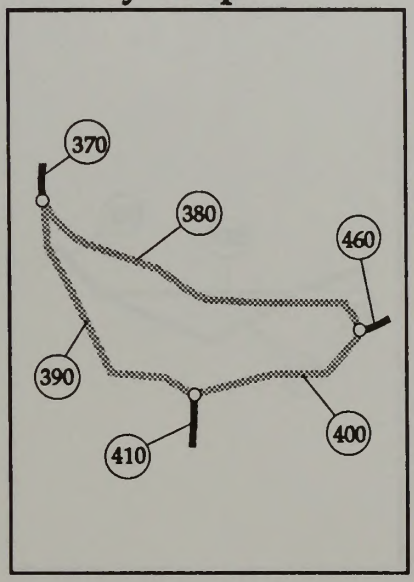


Subroute Ranking



Subroute Set 15

Vicinity Map

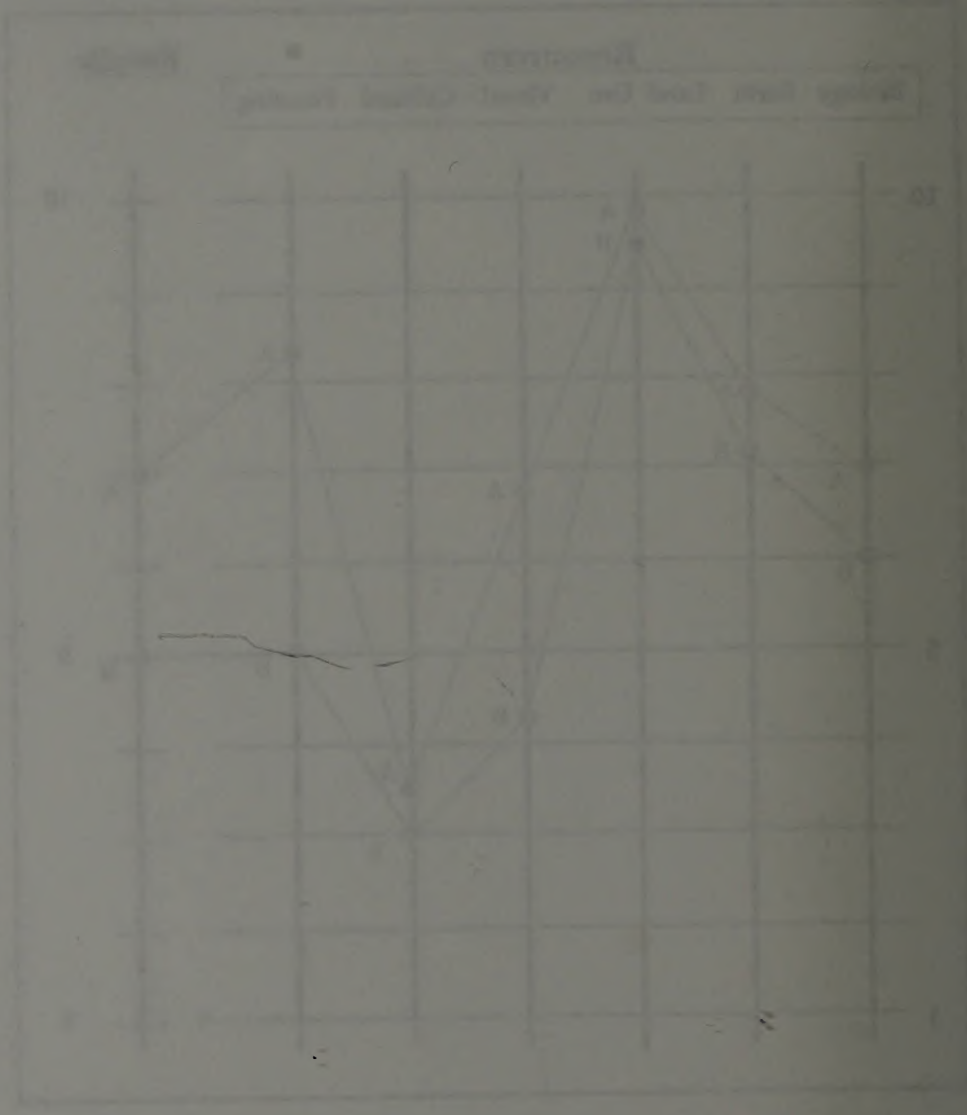


APPENDIX D

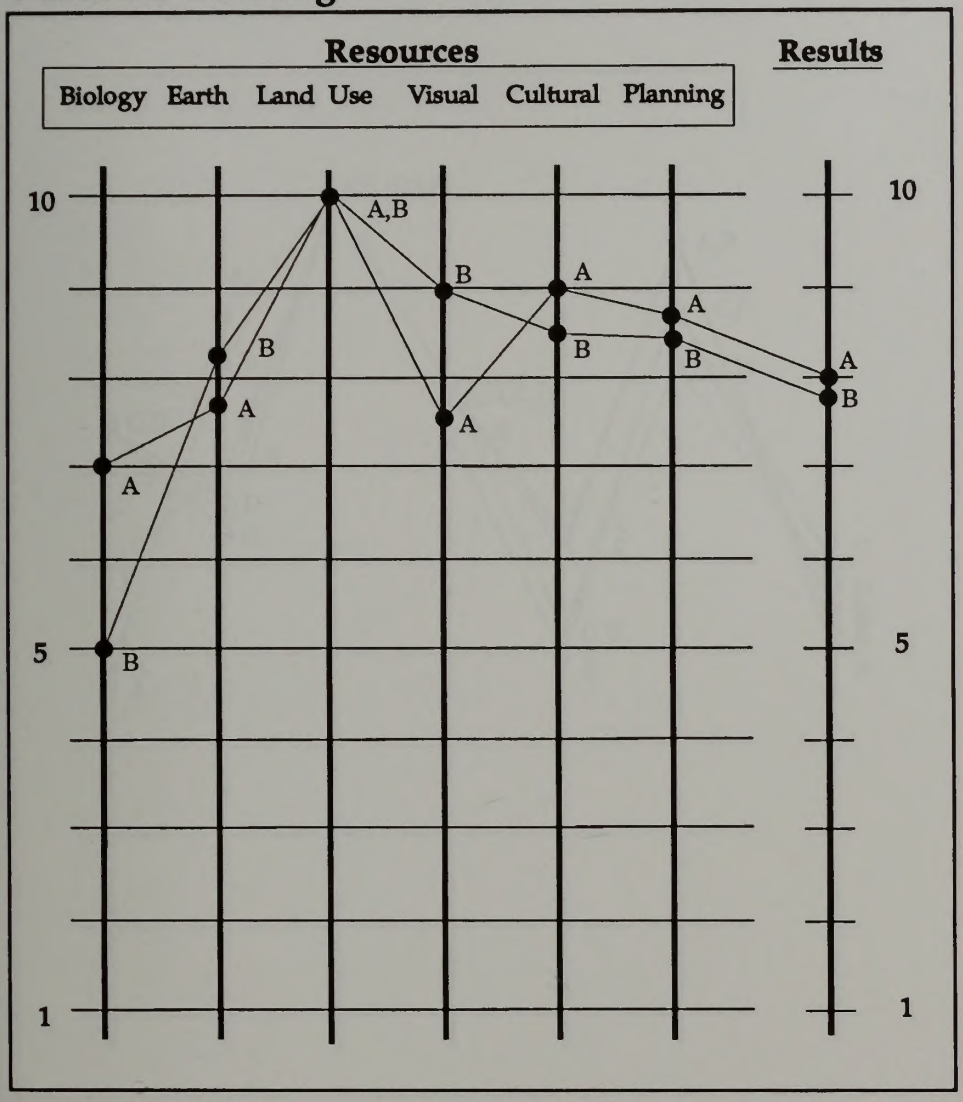
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
15a	380	18.0	4.2	0.0	17.9	4.3	0.0	0.1	0.0	0.0	9.9	10.0	3.9	19.6	2.1	0.5	0.0	Parallels existing 230kV transmission, shorter
15b	390,400	25.4	3.2	0.2	26.4	2.4	0.0	0.7	0.0	0.0	14.0	11.8	3.0	15.7	9.8	3.3	0.0	Crosses scenic highway and Major's Place

Subroute Evaluation Form

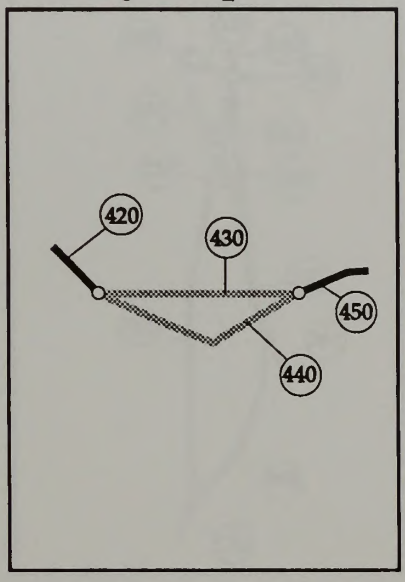


Subroute Ranking



Subroute Set 16

Vicinity Map

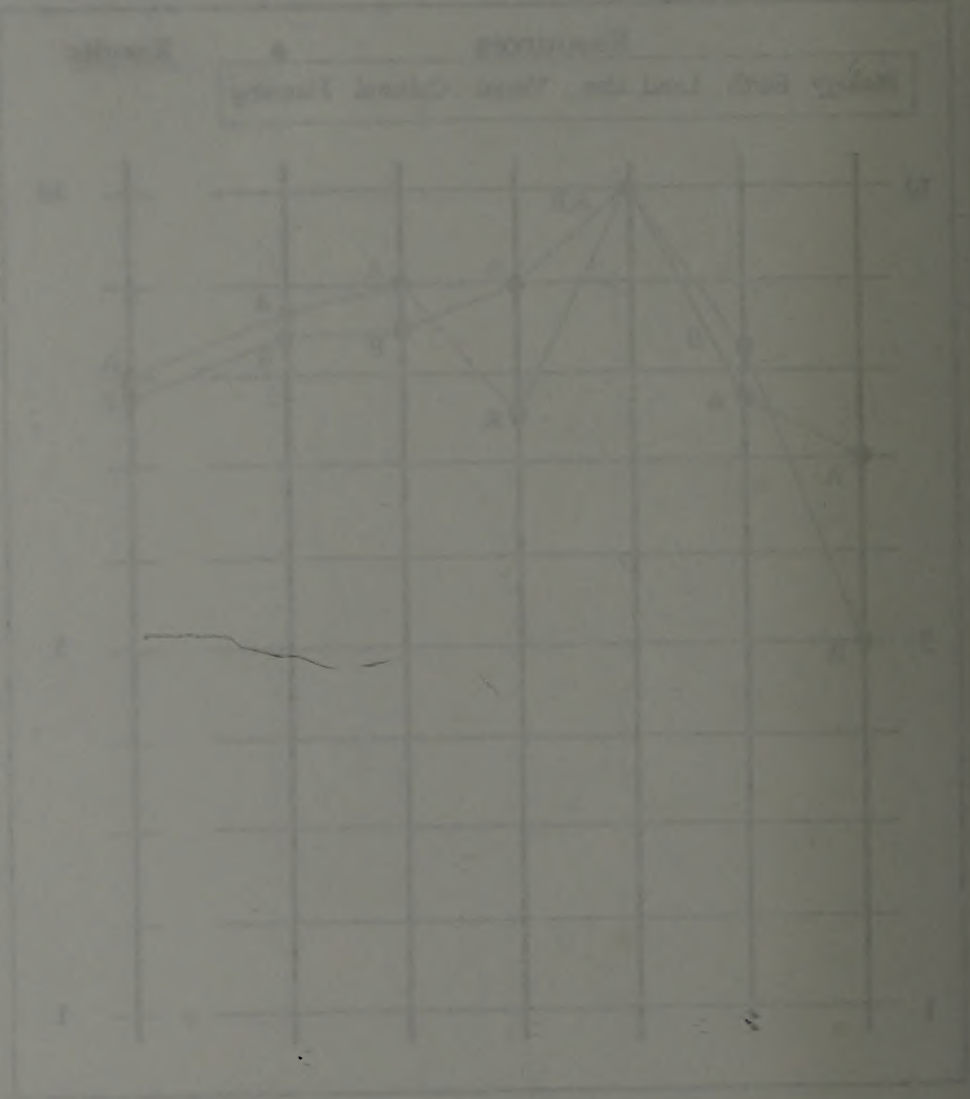


APPENDIX D

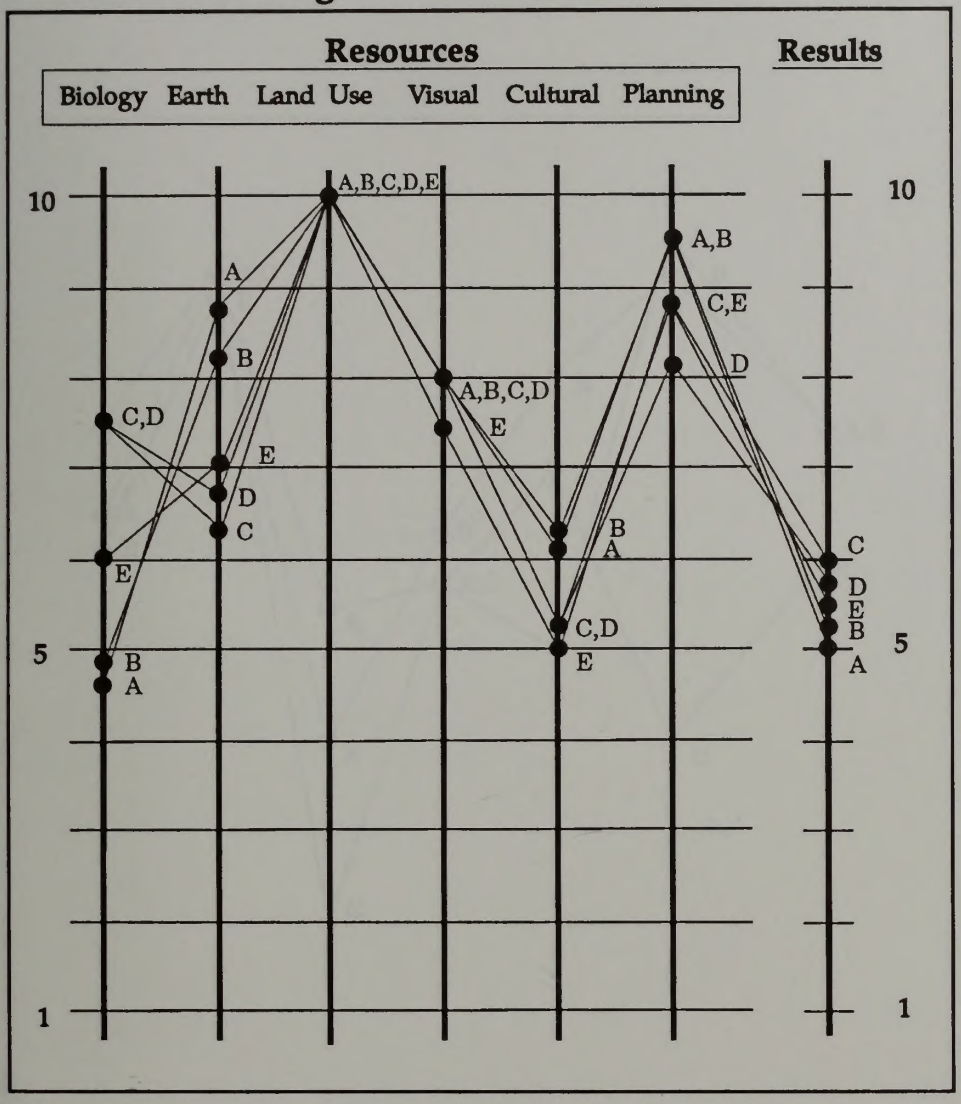
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
16a	430	5.5	2.7	0.0	16.2	0.7	0.0	0.0	0.0	0.0	7.0	2.2	0.0	15.9	1.0	0.0	0.0	Shorter route, passes near ranch
16b	440	13.9	1.7	0.1	18.0	0.4	0.0	0.0	0.0	0.0	5.4	1.9	0.1	18.4	0.0	0.0	0.0	

Subroute Evaluation Form

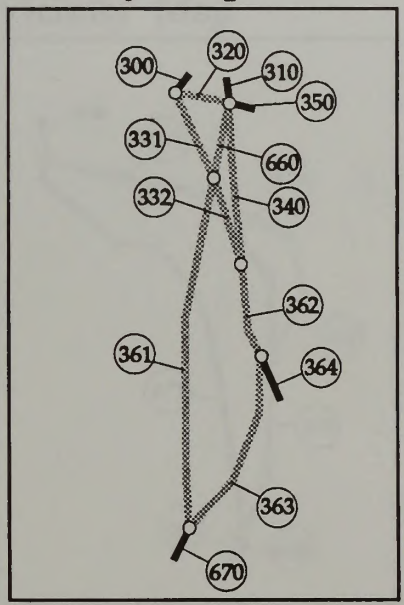


Subroute Ranking



Subroute Set 17

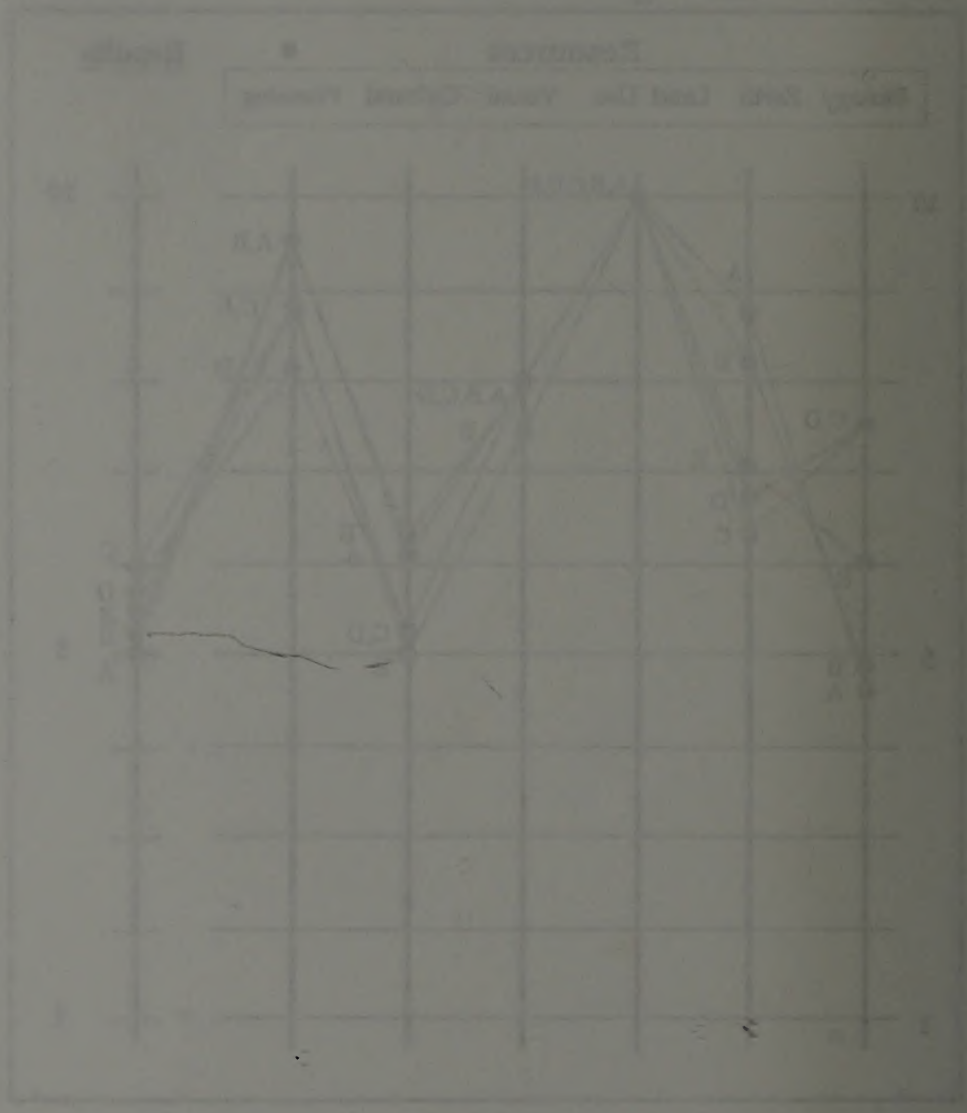
Vicinity Map



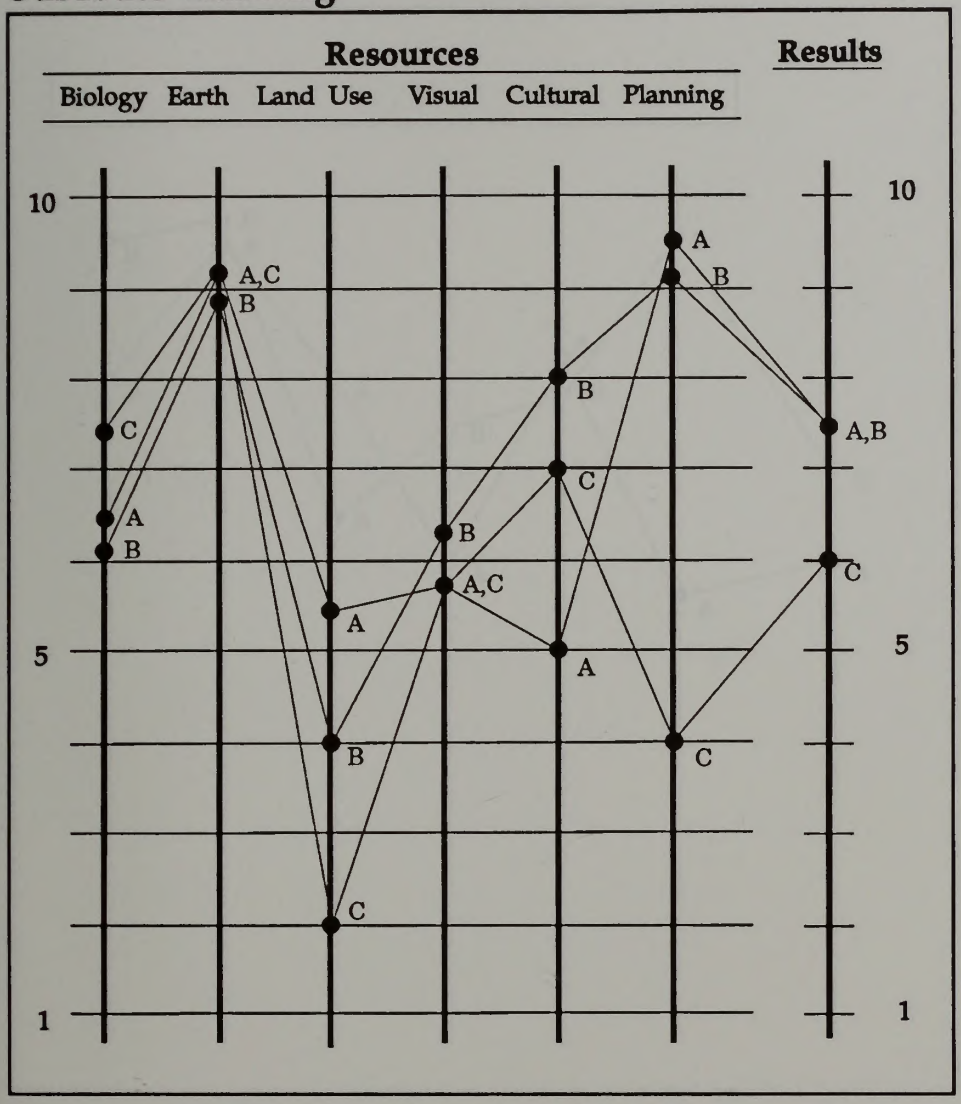
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
17a	331,361	19.7	10.3	0.0	27.4	1.8	0.0	0.0	0.0	0.0	5.3	7.3	0.0	30.0	0.0	0.0	0.0	near ferruginous hawk nests
17b	660,361	20.8	8.3	0.0	26.6	2.2	0.0	0.0	0.0	0.0	5.5	7.0	0.0	29.1	0.0	0.0	0.0	near ferruginous hawk nests
17c	340,362,363	23.9	1.8	0.0	23.5	6.6	0.0	0.0	0.0	0.0	8.1	3.2	0.2	30.1	0.0	0.0	0.0	cultural site
17d	660,332,362, 363	24.2	1.8	0.0	25.1	5.3	0.0	0.0	0.0	0.0	8.4	3.2	0.2	30.4	0.0	0.0	0.0	cultural site
17e	331,332,362, 363	23.1	3.8	0.0	25.9	4.9	0.0	0.0	0.0	0.0	8.2	3.5	0.2	31.3	0.0	0.0	0.0	cultural site

Subroute Evaluation Form

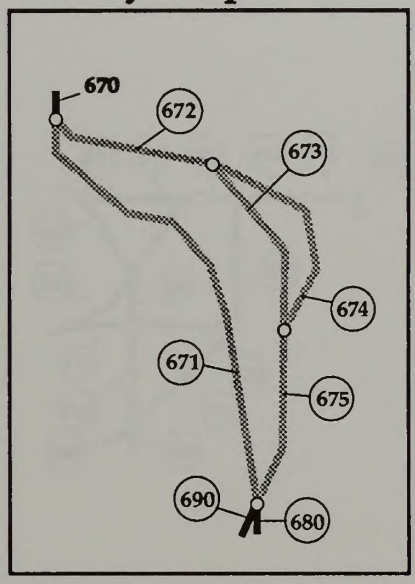


Subroute Ranking



Subroute Set 18

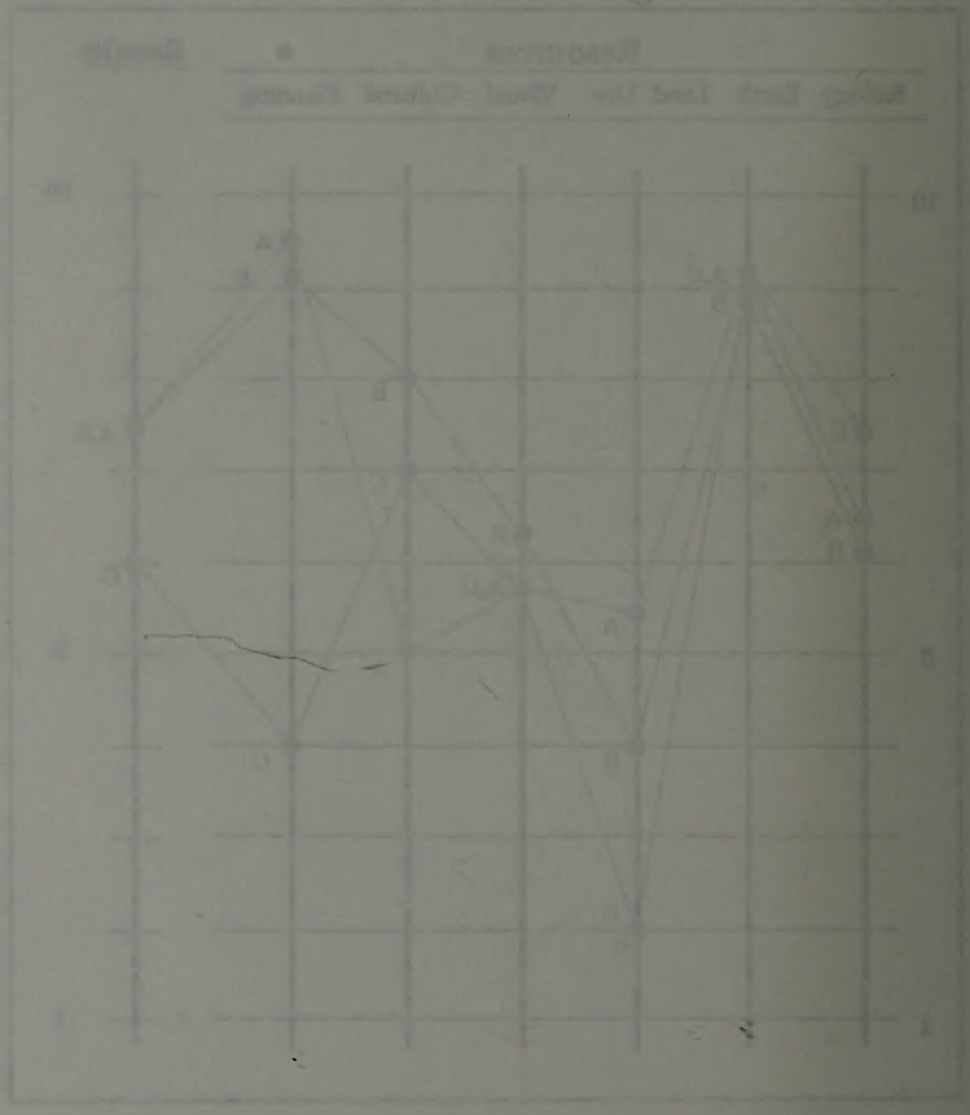
Vicinity Map



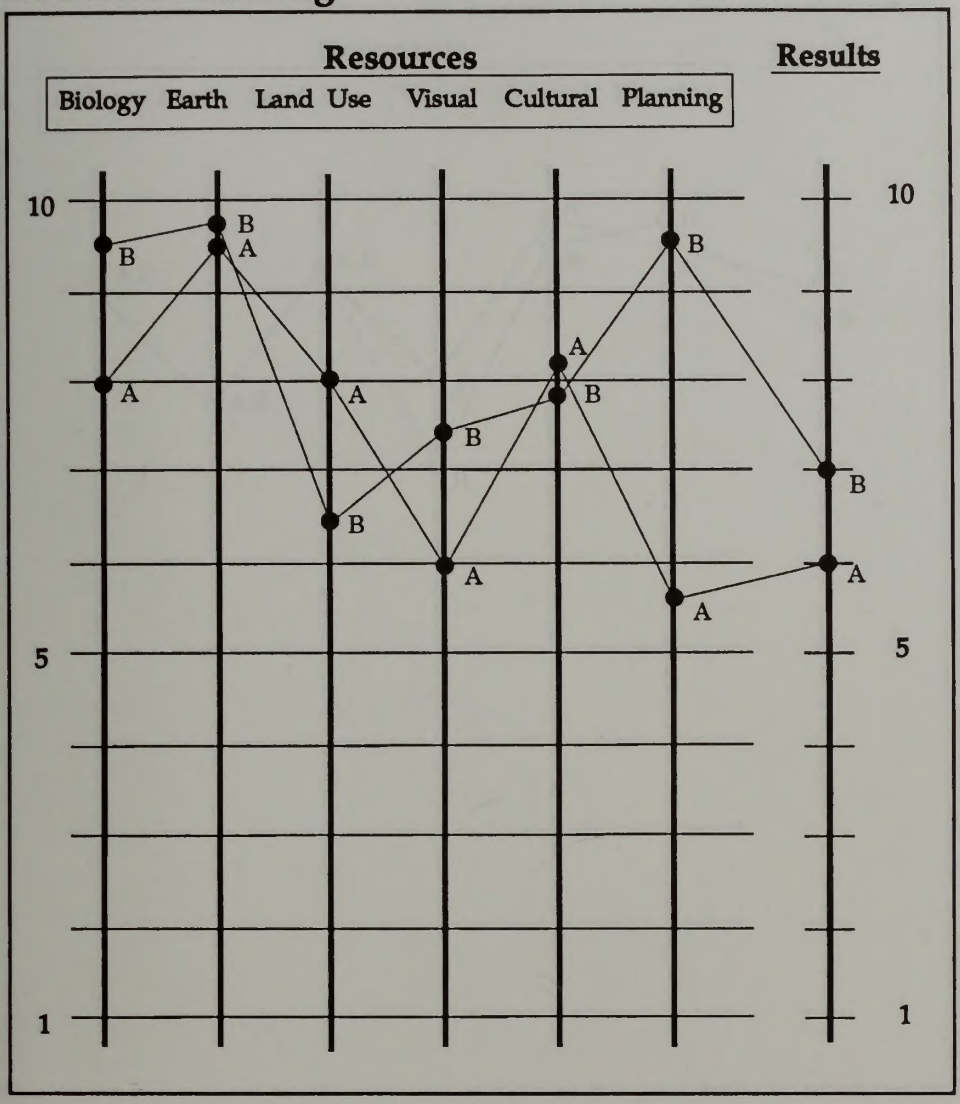
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
18a	672,674,675	9.3	0.3	0.0	74.5	0.6	0.0	42.4	26.9	0.0	17.3	13.1	0.0	72.7	1.8	0.6	0.0	crosses near Bristol Well
18b	672,673,675	12.9	2.0	0.0	71.4	0.9	0.0	24.7	41.8	0.0	12.7	11.2	0.0	69.9	1.8	0.6	0.0	
18c	671	1.0	0.0	0.0	64.7	0.7	0.0	0.0	61.5	0.0	12.4	16.0	0.0	62.9	2.1	0.4	0.0	conflicts with military flight operations

Subroute Evaluation Form

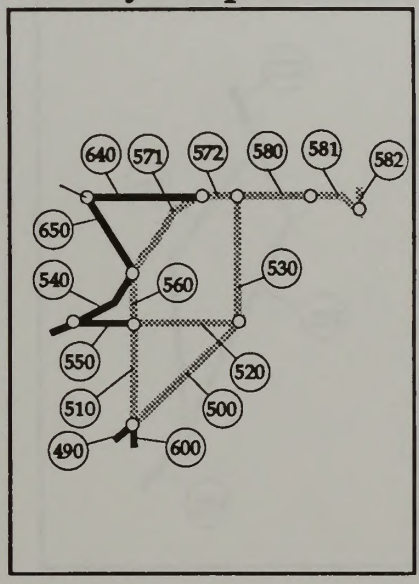


Subroute Ranking



Subroute Set 19

Vicinity Map

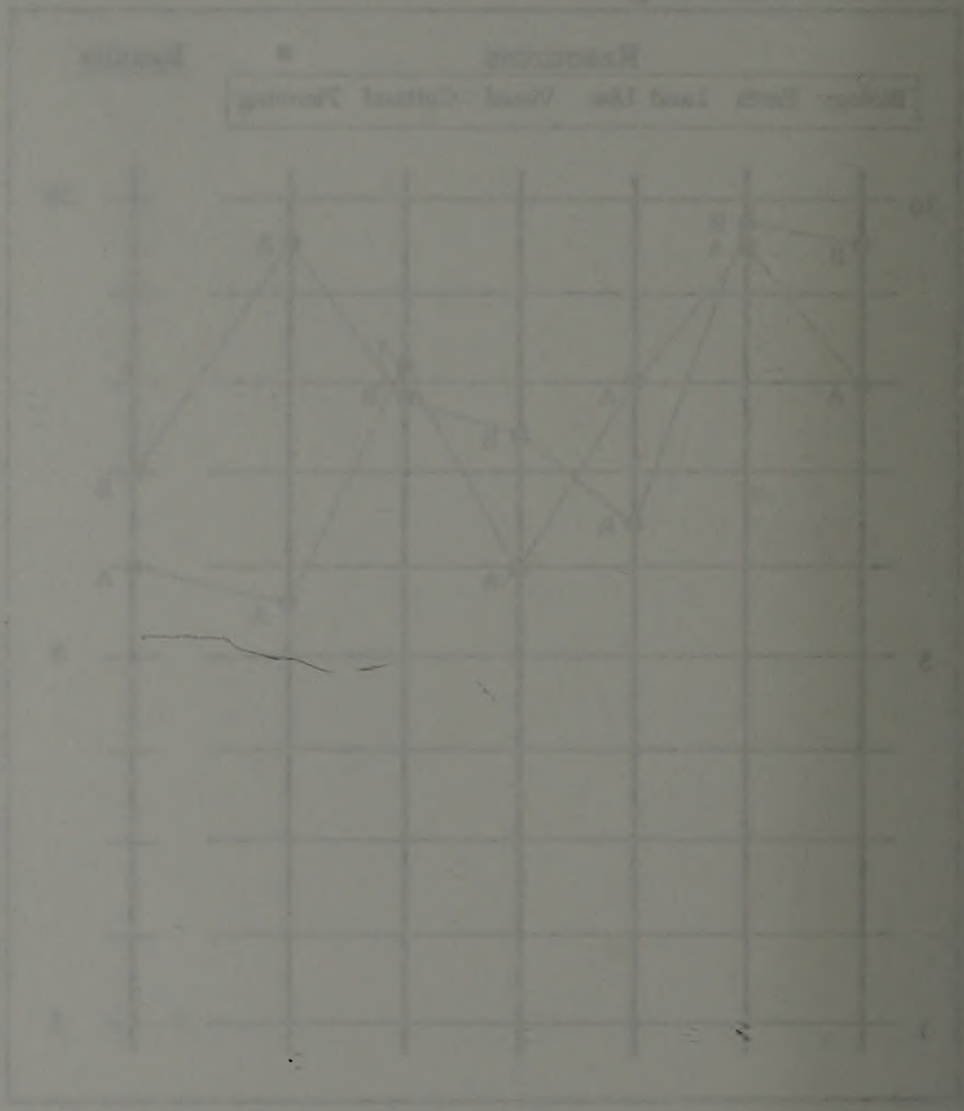


APPENDIX D

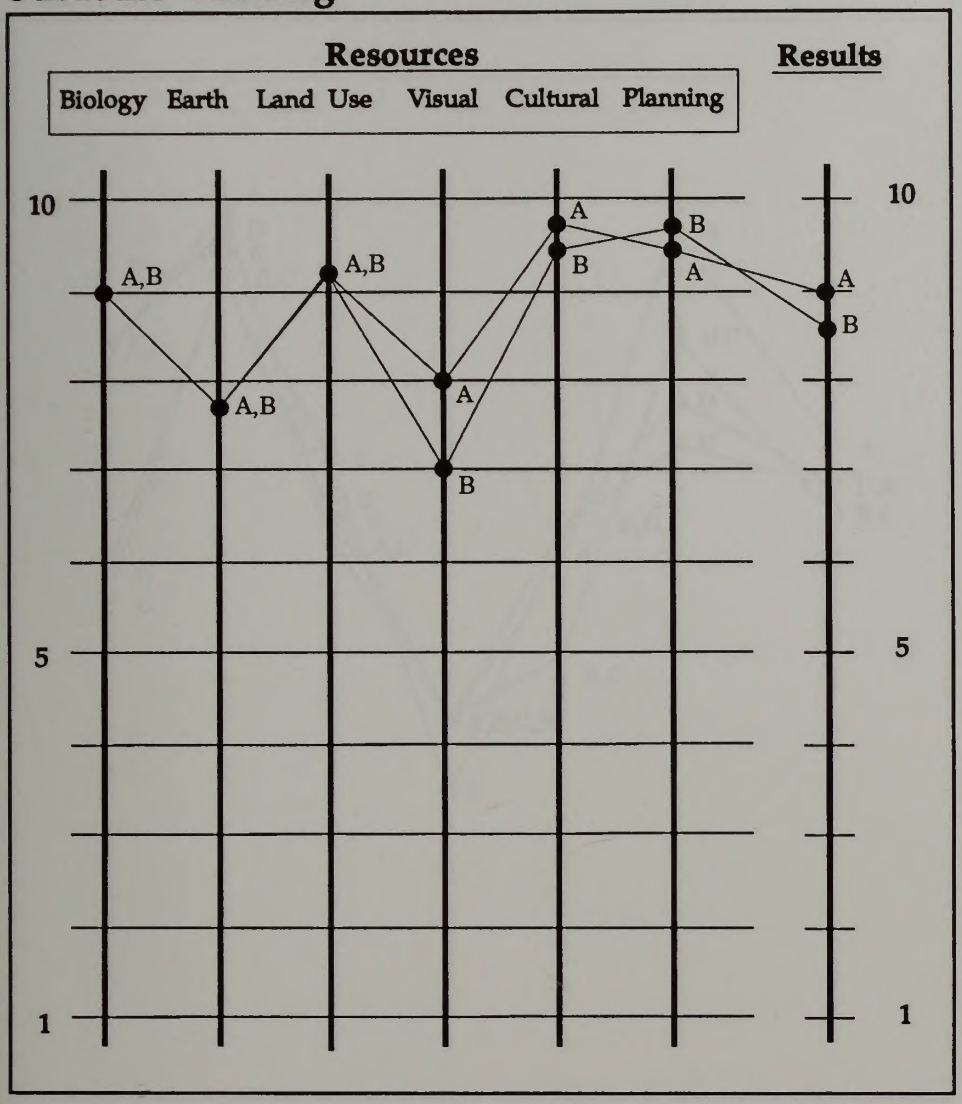
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
19a	500,530,580, 581,582	1.3	0.0	0.0	30.3	0.0	0.0	12.9	0.0	0.0	2.9	0.3	0.0	14.7	15.1	0.6	0.0	crosses agricultural lands
19b	510,560,571,572, 580,581,582	10.3	0.0	0.0	31.8	0.0	0.0	24.3	0.0	0.0	4.1	0.2	0.0	25.9	5.4	0.6	0.0	parallels existing 500kV transmission line

Subroute Evaluation Form

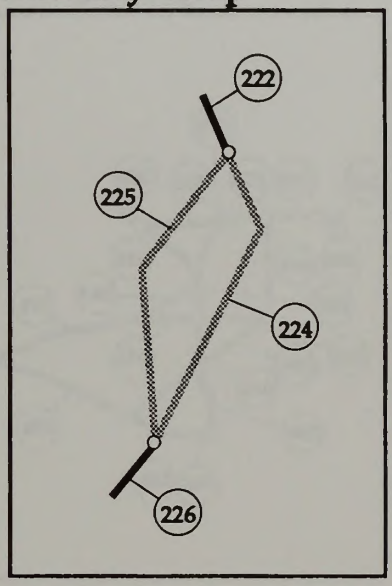


Subroute Ranking



Subroute Set 20

Vicinity Map

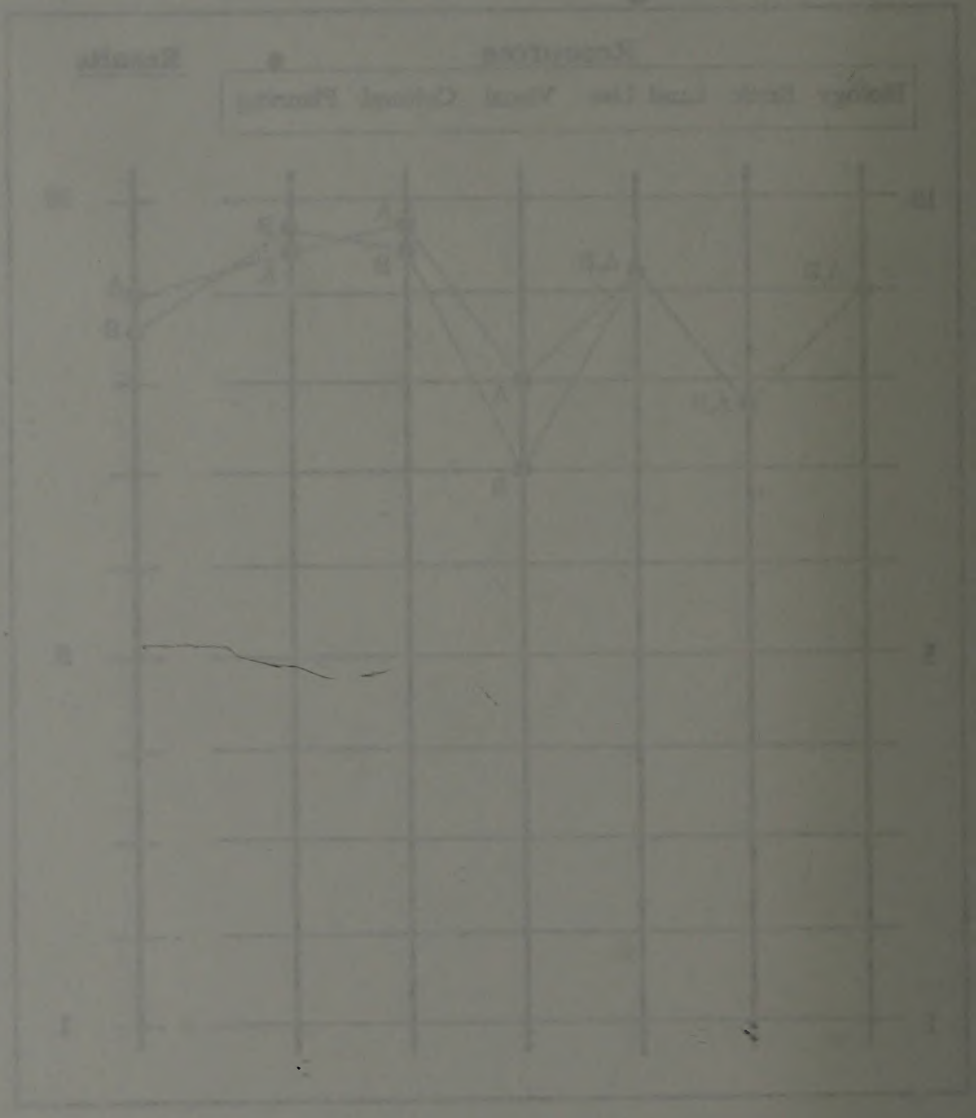


APPENDIX D

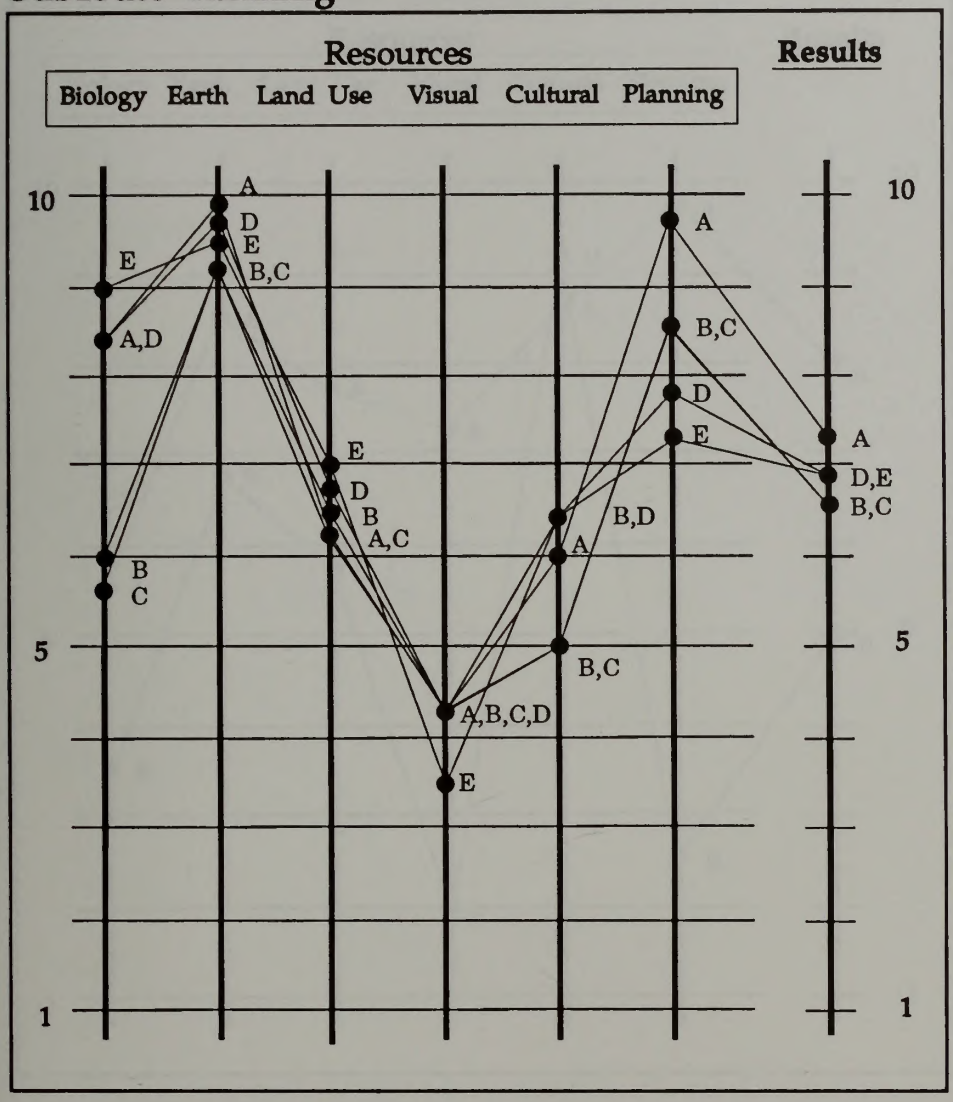
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
20a	224	5.9	0.0	0.0	5.1	0.8	0.0	0.0	5.9	0.0	0.1	0.0	0.0	3.9	2.0	0.0	0.0	better crossing of US 93A
20b	225	5.9	0.0	0.0	5.1	0.8	0.0	0.0	5.9	0.0	1.2	0.0	0.0	3.3	2.2	0.4	0.0	

Subroute Evaluation Form

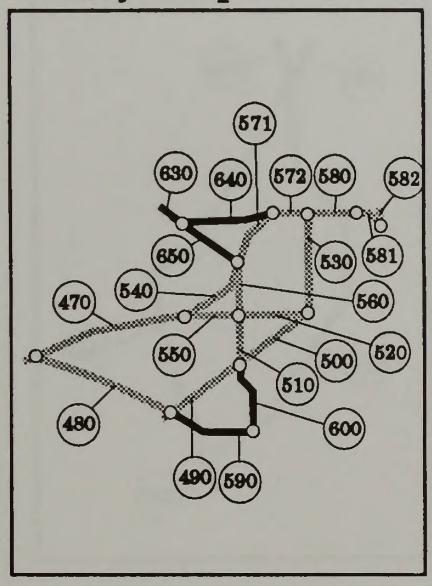


Subroute Ranking



Subroute Set 21

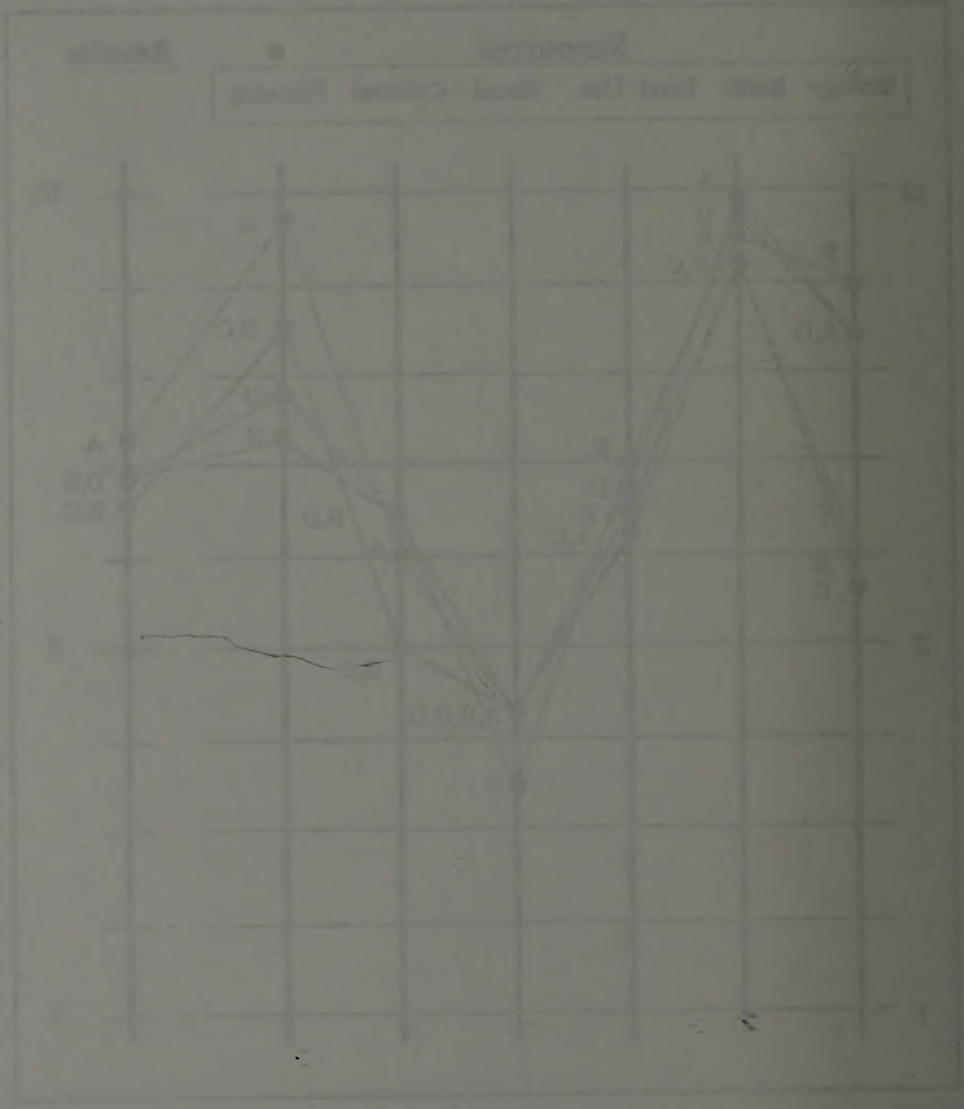
Vicinity Map



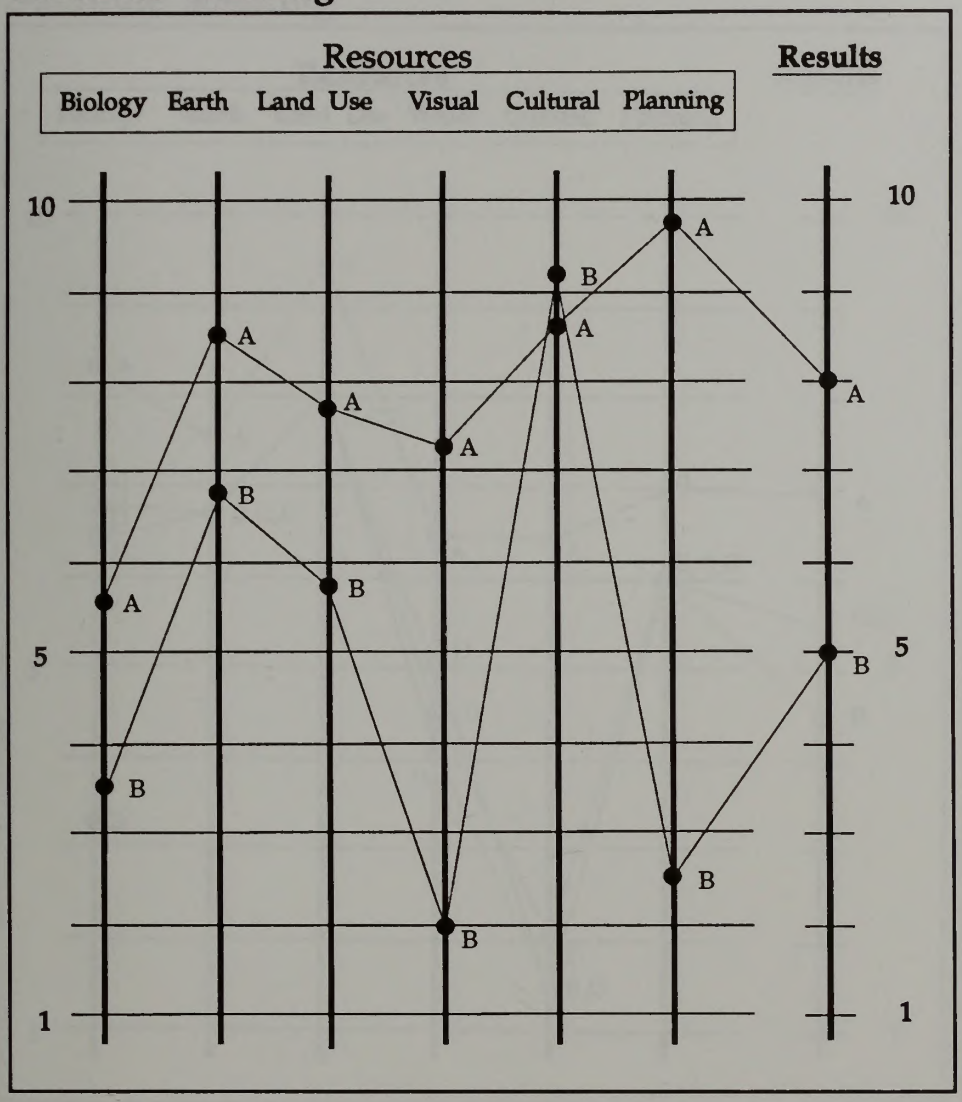
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
21a	470,540,571,572, 580,581,582	33.3	0.3	0.0	45.2	0.0	0.0	38.8	0.0	0.0	6.8	7.6	0.0	36.5	8.7	1.2	0.0	parallels existing 230kV & 500kV transmission lines
21b	480,490,510,560,571, 572,580,581,582	34.4	1.4	0.0	56.1	0.2	0.0	49.8	0.0	0.0	15.6	9.9	0.0	49.2	7.5	0.9	0.0	
21c	480,490,500,530, 580,581,582	25.4	1.4	0.0	54.6	0.2	0.0	38.4	0.0	0.0	14.4	10.0	0.0	38.0	17.2	0.9	0.0	crosses agricultural lands
21d	470,550,560,571, 572,580,581,582	32.3	0.3	0.0	47.2	0.0	0.0	41.3	0.0	0.0	7.4	7.3	0.0	39.0	8.7	1.2	0.0	
21e	470,550,520,530, 580,581,582	22.4	0.3	0.0	49.0	0.0	0.0	35.9	0.0	0.0	7.3	7.3	0.0	33.3	16.6	1.7	0.0	crosses agricultural lands

Subroute Evaluation Form

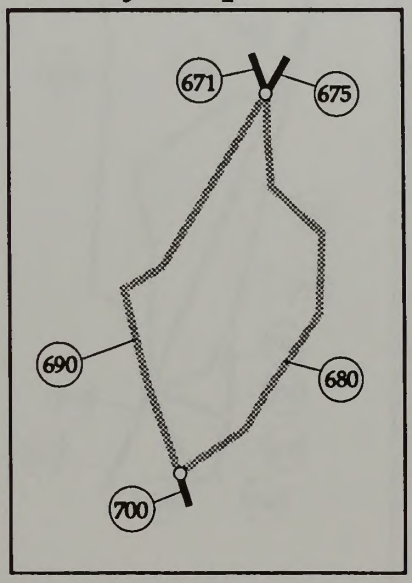


Subroute Ranking



Subroute Set 22

Vicinity Map

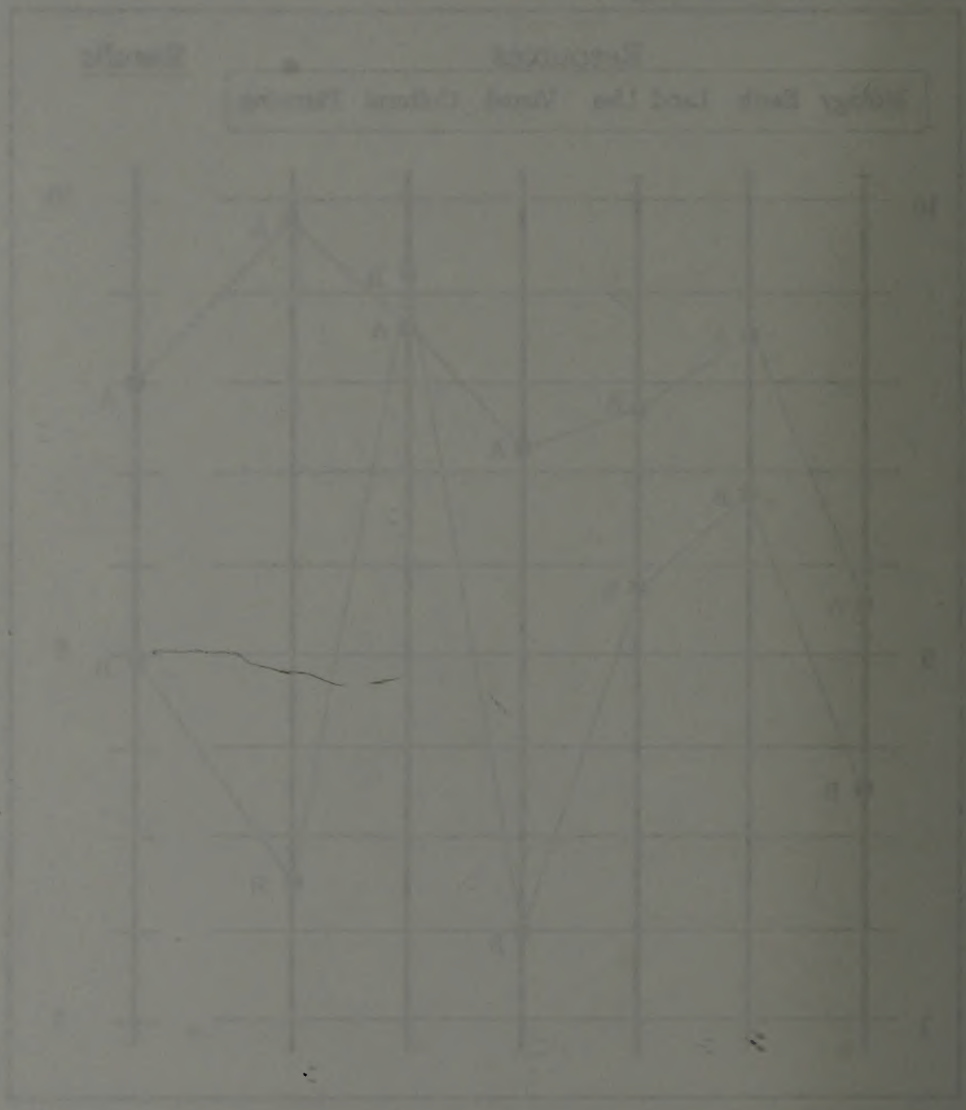


APPENDIX D

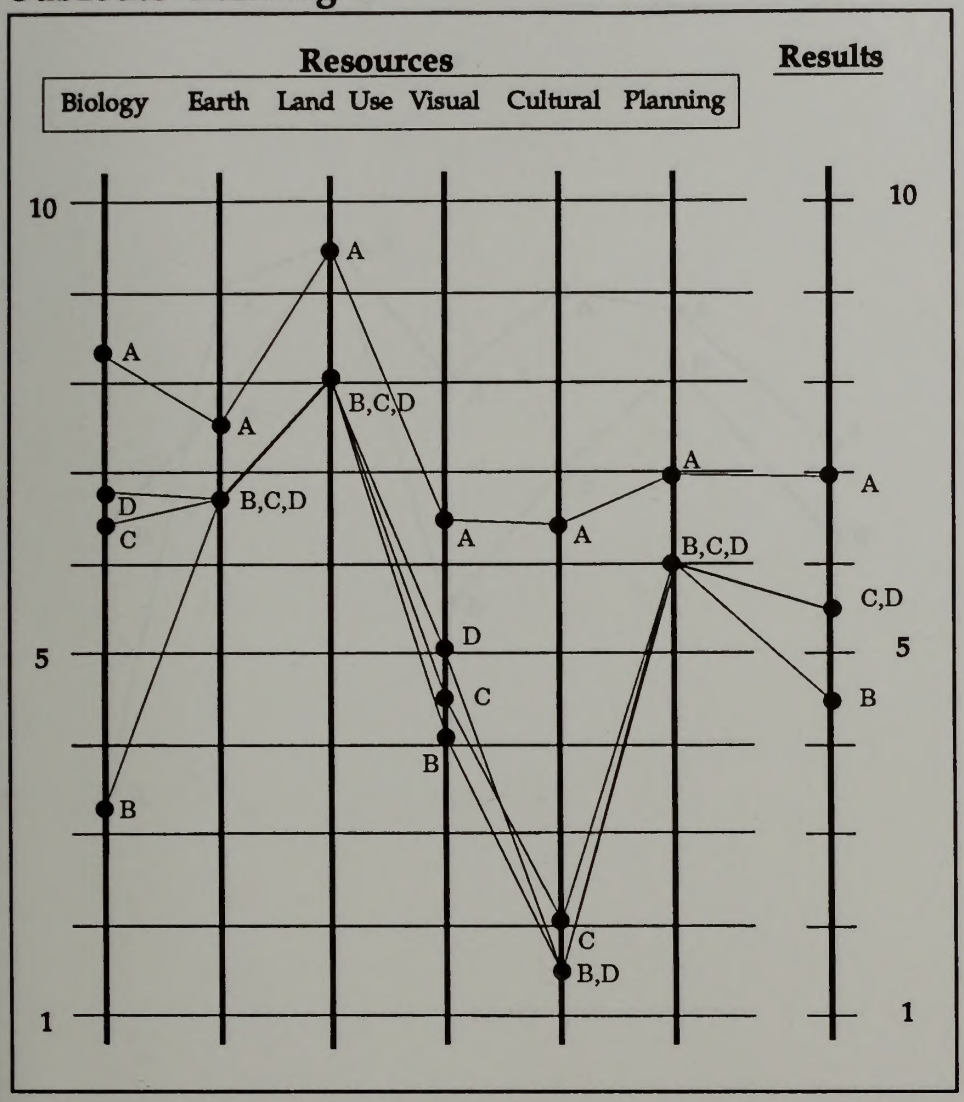
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
22a	690	22.5	0.0	0.0	43.8	0.3	0.0	22.1	22.0	0.0	1.3	0.4	0.0	29.7	13.6	0.8	1.1	parallels existing 69kV transmission line through Pahranagat Wash, crosses VRM Class III
22b	680	26.9	6.4	0.0	43.4	5.9	0.0	9.5	40.2	0.0	0.0	0.2	0.0	29.8	8.6	12.3	0.0	crosses Delamar Mountains, parallels Kane Springs Backcountry Byway

Subroute Evaluation Form

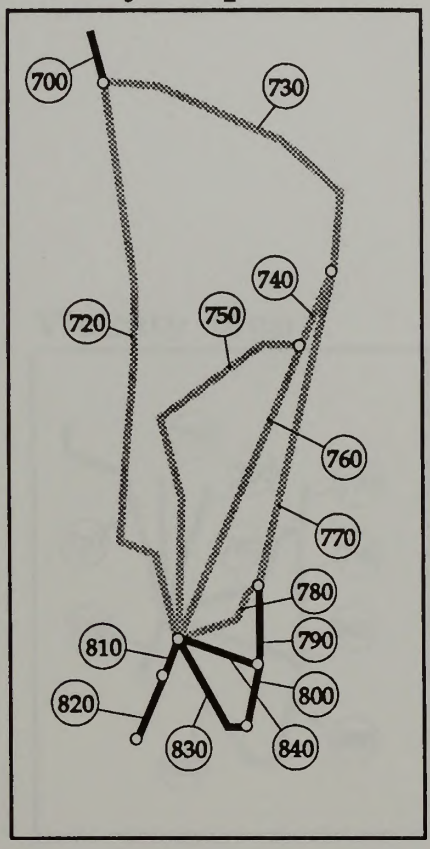


Subroute Ranking



Subroute Set 23

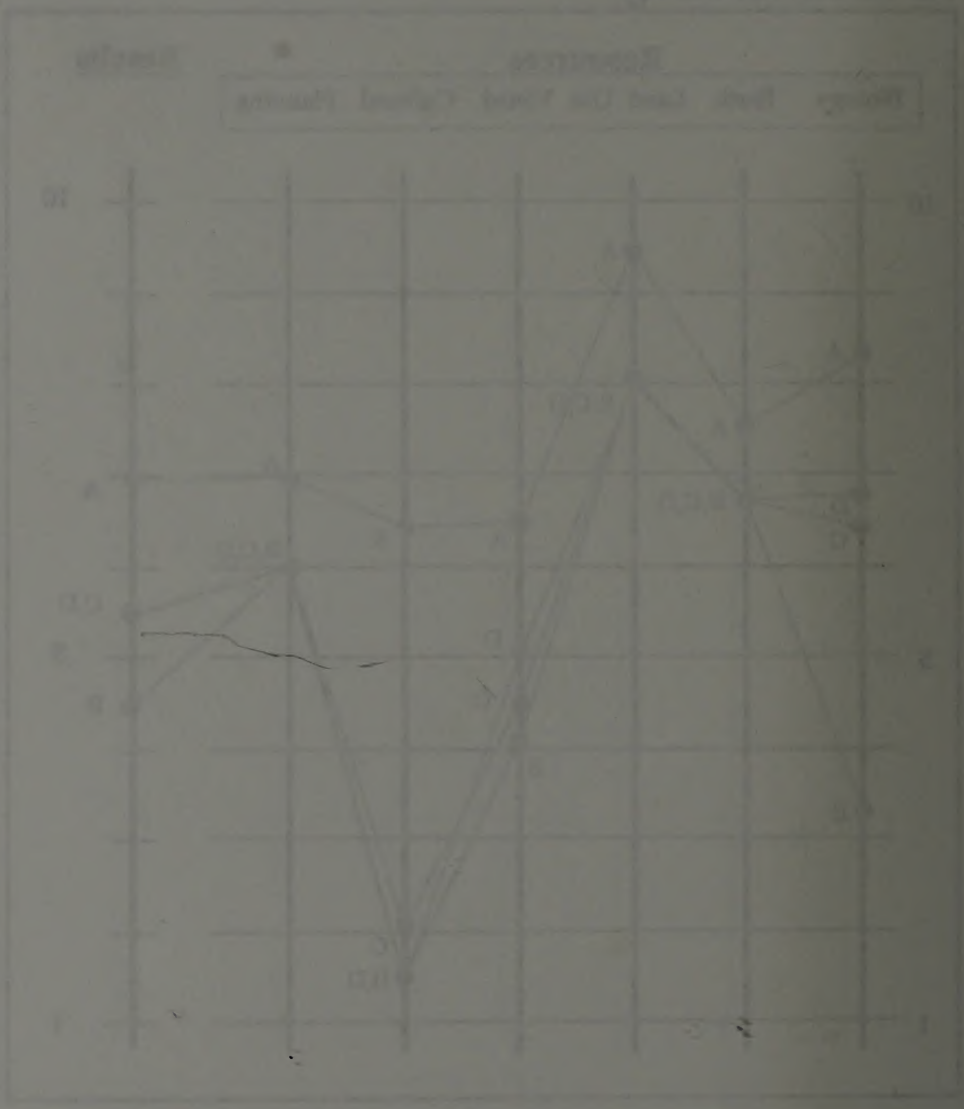
Vicinity Map



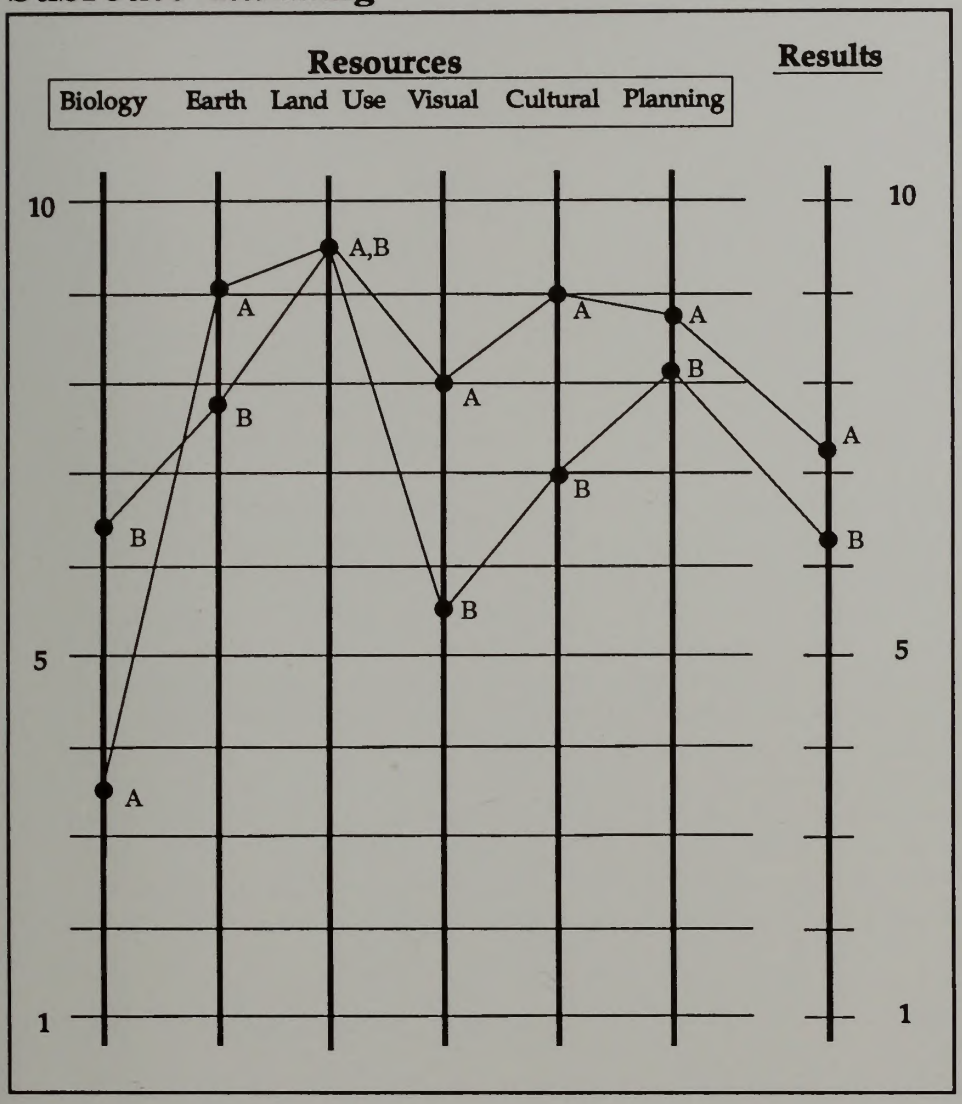
Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
23a	720	20.0	2.1	0	22.8	0	0	0	0	0	0	18.9	0	20.9	1.9	0	1.5	crosses VRM Class II, parallels US 93 crosses Cat. II desert tortoise habitat
23b	730, 740, 750	8.2	18.7	0	31.3	0	0	9.3	0	0	0.4	1.8	0.1	18.6	10.7	2.2	0	crosses roads that access Arrow Canyon WSA
23c	730, 740, 760	14.3	9.8	0	28.7	0	0	9.2	0	0	0.5	1.1	0.1	17.2	9.7	1.9	0	crosses roads that access Arrow Canyon WSA
23d	730, 770, 780	9.2	15.3	0	29.6	0	0	9.3	0	0	0.6	1.3	0.2	17.3	10.8	1.6	0	crosses roads that access Arrow Canyon WSA

Subroute Evaluation Form

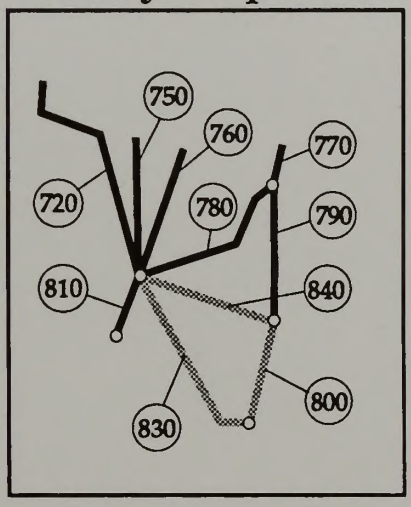


Subroute Ranking



Subroute Set 24

Vicinity Map

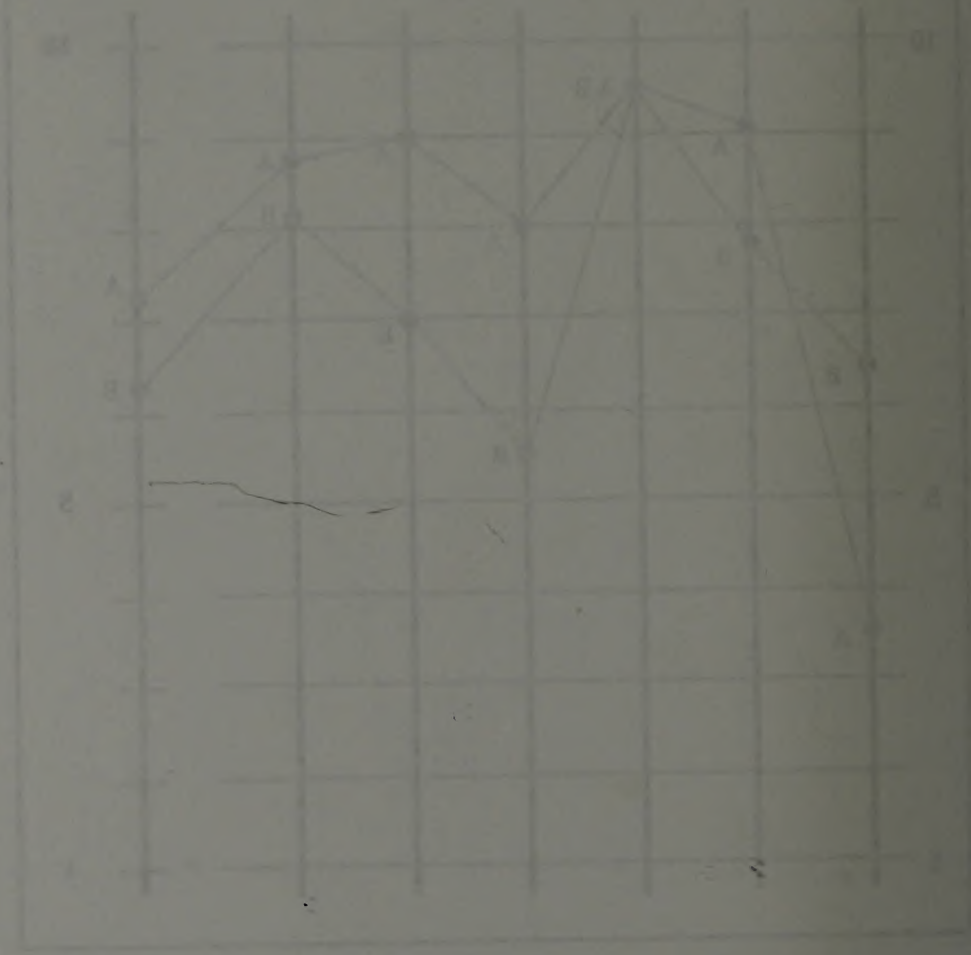


APPENDIX D

Impact Summary Table

Subroute Sets	Links	Biology			Earth			Land Use			Cultural			Visual				Comments
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
24a	840, 800	1.5	2.1	0	0.4	0	0	0	0	0	0	0	0	5.1	0.5	0	0	better crossing of Interstate 15
24b	830	1.3	0.6	0	4.6	0	0	0	0	0	0	0.6	0	2.0	1.9	0.7	0	crosses Old Spanish Trail, rare plants

Subroute Evaluation Form



APPENDIX E

SUBSTATIONS AND SERIES COMPENSATION STATIONS

APPENDIX E
SUBSTATIONS AND SERIES COMPENSATION STATIONS

INTRODUCTION

The substation and series compensation station study was conducted as part of the environmental studies for the proposed SWIP. This appendix contains a brief description of the proposed facilities, the inventory, the facilities siting process, and the impact assessment and mitigation planning process.

To facilitate the siting of substation and series compensation facilities, ten general siting study areas were identified. The locations of these siting areas were determined by the electrical and interconnection needs of the transmission line, environmental constraints and the locations of routing alternatives.

Three siting areas for a new substation were identified in the vicinity of the Intermountain Generating Station near Delta, Utah to provide an interconnection for the crosstie route from Ely, Nevada, to Delta, Utah. Three siting areas were identified for a new substation in the vicinity of Ely, Nevada, to provide an open marketplace substation. One siting area, located in Dry Lake Valley, northeast of Las Vegas, Nevada, was identified for the southern terminus of the SWIP. In addition, three alternative siting areas were identified for a series compensation station in central Elko County, Nevada. Alternative sites were identified within each of these siting areas using environmental and engineering constraints.

Description of Facilities

Substations

Generally, the purpose of a substation is to interconnect electrical transmission lines of similar or different voltages in to the transmission grid. Substations enable utility companies to reliably deliver electrical energy from generating facilities (resource) to consumers (load) by directing the flow of power within the transmission grid.

The site for a 500kV substation would require approximately 80 acres. Typical equipment at a substation includes: transmission line take-off structures, power circuit breakers, power transformers, switches, buswork, control house, microwave communications equipment, and other associated controls and instrumentation. The illustration at the top of Figure E-1 shows an elevation of a typical 500kV substation. Though substations cannot absolutely control the flow of energy on a transmission grid, switching operations at individual substations can

change the configuration of the grid to influence energy flows and voltages on the transmission grid.

Series Compensation Station

The primary function of a series compensation station is to minimize adverse voltage conditions on long transmission lines. Excessive variation in voltage can cause conditions that can have detrimental effects on electrical equipment operated by energy consumers. The series compensation station maintains the stability of receiving-end voltages within the desired limits. The series compensation station is similar to a substation facility in that it can also provide a point of interconnection and has some switching capability.

A series compensation station typically requires a site of between 15 to 20 acres, but can be as large as a substation. Series compensation station equipment consists of electrical towers, high voltage series capacitor banks, switching equipment, and bus conductors. The series capacitor electrical equipment is composed of several banks of capacitor cans and bypass circuit breakers mounted in structural steel racks supported on insulators. This facility is called a series compensation station because the capacitor banks are connected in series with the transmission line to electrically reduce the line's inductance. The result is more efficient energy flow. The illustration at the bottom of Figure E-1 shows an elevation of a typical 500kV series compensation station.

Operation

The substations and series compensation station associated with the proposed project would be unmanned. Switching operations and the control of other electrical equipment within these facilities would be done from a remote operations center using microwave or fiber optic communications.

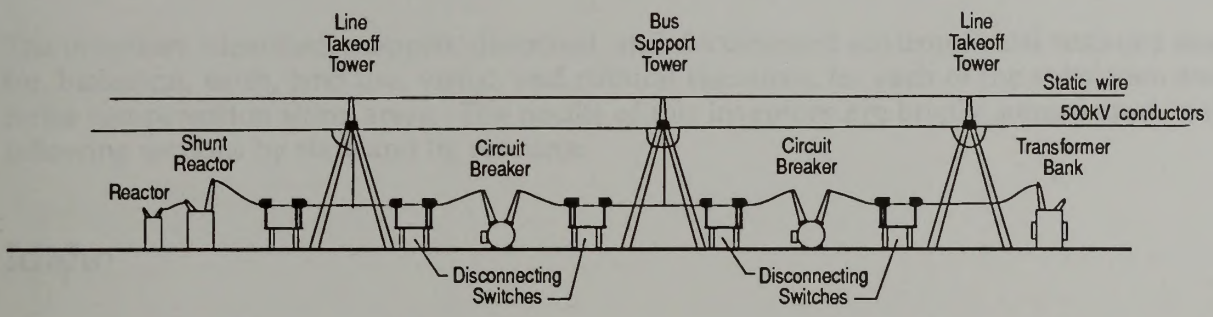
INVENTORY

This section summarizes the inventory methods and results for the resource studies conducted for the substation and series compensation station siting areas. The technical reports contain more detailed information (refer to Appendix H for the locations where technical reports can be reviewed).

Methods

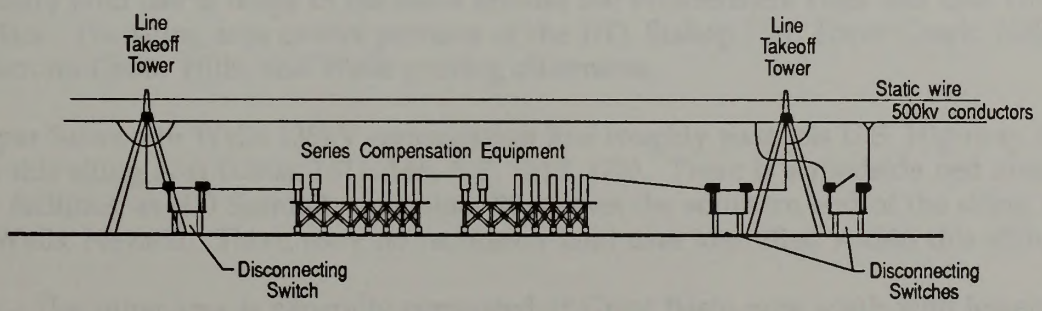
Resource data were inventoried and mapped within each of the ten substation and series compensation station siting areas described in the introduction to facilitate assessing potential

Typical Elevation of 500kV Substation



NOTE: Illustration for graphics representation only, not approved for construction.

Typical Elevation of a Series Compensation Station



NOTE: Illustration for graphics representation only, not approved for construction.

APPENDIX E

Substation and Series Compensation Facilities

Figure E-1

impacts from the construction and operation of these facilities. Data were collected during the summers of 1989 and 1990 from agencies and verified by field reconnaissance and aerial overflights of the areas.

Results

The inventory identified, mapped, described, and documented environmental resource data for, biological, earth, land use, visual, and cultural resources, for each of the substation and series compensation siting areas. The results of this inventory are briefly summarized in the following sections by state and by resource.

Idaho

Currently, no substation or series compensation station siting areas are proposed for areas in Idaho.

Nevada

U.S. Highway 93 Series Compensation Station Siting Area

Land Use - This siting area covers a portion of Bishop Creek and Town Creek Flat along the U.S. Highway 93 corridor between HD Summit and Interstate 80. The area encompasses all or portions of Links 165, 166, 168, 169, 170, and 180. Land jurisdictions within this siting area consist of a checkerboard pattern of BLM lands administered by the Elko District office and private lands.

The primary land use is range in the areas around the Windermere Hills and into Town Creek Flats. The siting area covers portions of the HD, Bishop Flat, Town Creek, Holborn, Moor Summit Cedar Hills, and Wells grazing allotments.

The Upper Salmon to Wells 138kV transmission line roughly parallels U.S. Highway 93 through this siting area (Links 1611, 166, 167, 1613, 170). There is a roadside rest area, without facilities, at HD Summit. Interstate 80 crosses the southern end of the siting area just east of Wells, Nevada. There were no recreation land uses identified within this siting area.

Biology - The siting area is generally composed of Great Basin sage scrub with lesser contribution by Great Basin grassland. The only sensitive wildlife species known to occur near the site is sage grouse. No sensitive plant species were identified in this siting area.

Earth - The siting area consists largely of alluvial soils eroded from surrounding mountains and hills and deposited in basin areas. Much of the siting area has high hazard of water erosion. The Windermere Hills are deeply dissected by intermittent streams. There are a few

areas in the basin where shallow ground water may be of concern. There were no known fossil localities identified within this siting area.

Visual - The visual resources inventory identified areas of Class B scenery in the Windermere Hills that are managed with VRM Class III. Interstate 80 has been designated as a "low visibility" corridor by the Wells Resource Management Plan and is managed with VRM Class II. The scenic quality of the majority of the southern half of the area is Class C.

Town Creek Flats, most of the southern half of the area, is openly visible from both Interstate 80 and U.S. Highway 93. In addition, this area is also visible in the middleground and background from residences and other viewpoints in the vicinity of Wells.

Cultural - The California Immigrant Trail crosses Town Creek Flats north of Wells. The siting area contains a portion of a historic railroad, several pre-historic isolates and lithic scatters.

Thousand Springs Series Compensation Station Siting Area

Land Use - This siting area is located in the center of Toano Draw. It contains the site of the formerly proposed Thousand Springs Power Plant (near Link 144). The boundary encompasses all of Links 142, 143, 144 and 152, and portions of Links 151 and 1612. Land jurisdiction is a checkerboard pattern of public (Elko District of BLM) and private lands.

The primary land use is range. The siting area covers portions of the HD and Big Springs grazing allotments. There are several major well developments including File Mile Draw Well, Toano Well No. 1 and Well No. 2. Other range improvements include corrals and water tanks. The area is accessed by several graded, graveled roads that are used by ranchers in the area. No paved roads access this siting area. There were no recreation land uses identified within this siting area.

Biology - The siting area is dominated by grassland broken by areas of Great Basin sage scrub and bare or sparsely vegetated land. Pronghorn antelope are the only wildlife species of concern known to occur in the siting area. No sensitive plant species were identified in this siting area.

Earth - Toano Draw is a major intermittent drainage that contains alluvial deposits eroded from nearby mountains and hills. Medicine Creek, Deadman Creek, and numerous other intermittent streams drain into Toano Draw. Because of the vast area of alluvial deposits, much of this siting area has a high hazard of water erosion. There were no known fossil localities identified within this area.

Visual - The scenic quality of flat, open sparsely vegetated landscape of Toano Draw was inventoried as Class C. The entire siting area is managed with VRM Class IV by the Elko District of the BLM. Although no sensitive viewpoints were identified in the inventory, the only visual contrasting elements in the landscape of this siting area are the windmills of several wells and the paths of several primitive roads.

Cultural - The only known cultural resources identified in the siting area are pre-historic isolates and lithic scatters.

Goshute Valley Series Compensation Station Siting Area

Land Use - The southern boundary of this siting area is located about two miles northeast of the community of Oasis, Nevada. The area encompasses all of Link 221 and portions of Links 200 and 211. Land jurisdiction is a checkerboard pattern of public (Elko District of BLM) and private lands.

The primary land use is range. The siting area covers a portion of the Big Springs grazing allotment. There were no recreation land uses identified within this siting area.

The community of Oasis is located at the junction of Nevada State Highway 233 and Interstate 80. The state highway bisects the siting area from southwest to northeast. The Nevada Northern Railroad runs along the eastern edge of the siting area.

Biology - The siting area is dominated by Great Basin sage scrub broken by areas of grassland and bare or sparsely vegetated soil. Sage grouse habitat occurs throughout most of this siting area.

Earth - Similar to the other siting areas, this area of the Goshute Valley is largely composed of alluvial deposits eroded from nearby mountains. East Squaw Creek and several other intermittent streams occur within this siting area. There were no known fossil localities identified within this siting area.

Visual - The scenic quality of vast, flat, sage scrub covered, landscape of Goshute Valley was inventoried as Class C. The entire siting area is managed with VRM Class IV by the Elko District of the BLM. The siting area is openly visible to views from Nevada State Highway 233 between Oasis and Cobre. In the flat expanse of Goshute Valley, much of the siting area is visible in the background from residences in Oasis and adjacent to Interstate 80.

Cultural - A pre-historic antelope trap, a portion of a historic railroad, a historic ranch and community, and pre-historic isolates were identified within the siting area.

North Steptoe Substation Siting Area

Land Use - This siting area is located in the northern part of Steptoe Valley a few miles southwest of the junction of U.S. Highway 93 and U.S. Highway 93A near Lages Station and encompasses the intersection of Links 243, 260, 261, and 262. The lands within this siting area are administered by the Ely District of the BLM.

Currently, the primary land use in this siting area is range, and it covers portions of the Cherry Creek and Becky Creek grazing allotments. Also, the proposed WPPP is located within the area. U.S. Highway 93 crosses from north to south through the eastern half of the

siting area at the toe of the Schell Creek Range. There were no recreation land uses identified within this siting area.

Biology - This site is characterized by a mix of grassland, sparsely vegetated soils and Great Basin sage scrub. Portions of the siting area are known habitat for ferruginous hawks. There are also known sage grouse leks in the sage scrub areas in Steptoe Valley.

Earth - The site is composed largely of alluvial deposits that accumulated as streams eroded the Schell Creek Range and washed into the valley. Two small intermittent streams occur in this area. There is also some potential for the occurrence of shallow ground water. The fine alluvial deposits in the valley are prone to a high hazard of wind erosion. There were no known fossil localities identified within this siting area.

Visual - The scenic quality of the northern Steptoe Valley was inventoried as Class C and is managed with VRM Class III by the Schell Resource Area of the Ely District of the BLM. Views from U.S. Highway 93 are open into the valley and are backdropped by the Cherry Creek Range in the eastern half of the siting area.

Cultural - There were no known high sensitivity cultural sites identified within this area.

Robinson Summit Substation Siting Area

Land Use - The siting area is located at the northern end of Jakes Valley, northwest of the Ely area and encompasses portions of Links 300, 310, 320, 331, 340, 350 and 660. The lands within this siting area are administered by the Ely District of the BLM.

The area's primary land use is range, covering portions of the Thirty Mile Spring, Moorman Ranch, and Tom Plain grazing allotments. A water tank is located just north of the U.S. Highway 50.

U.S. Highway 50 crosses from east to west along the northern edge of this siting area. An airstrip indicated on the USGS map adjacent to the highway in this area was later found to be a road material stockpile area used by the Nevada Department of Transportation. The Gondor to Machacek 230kV transmission line bisects the siting area from east to west, paralleling Links 320 and 350 within the siting area. No recreation land uses were identified within this siting area.

Biology - This site has a mix of grassland, Great Basin sage scrub, and sparsely vegetated ground. The foothills south of the highway are covered with juniper. Sage grouse, pronghorn antelope, and possibly mule deer occur in this area.

Earth - The lower portions of this siting area are composed of alluvial deposits washed down from surrounding mountains and hills. Some of the hills on the eastern and southern side in this area have high mineral potential. The alluvial soils in the valley are prone to high hazard of water and wind erosion. Several small intermittent streams descend from the

foothills into this area. There were no known fossil localities identified within this siting area.

Visual - The scenic quality of the rolling juniper-covered hills was inventoried as Class B and the flat sage scrub areas as Class C. This siting area is managed with VRM Class III by the Ely District of the BLM. The northern half of this siting area is visible from U.S. Highway 50. However, the southern half of this siting area is not visible from sensitive viewpoints.

Cultural - There were no high sensitivity sites identified within this siting area.

Hercules Gap Substation Siting Area

Land Use - The siting area is situated in the Steptoe Valley north of McGill and Ely, Nevada, and encompasses all of Links 351 and 352 and portions of Links 292, 350 and 370. Lands within this siting area are predominantly administered by the Ely District of BLM, but with occasional small private inholdings.

The primary land use is rural agriculture and range. The siting area covers portions of the Cooper Flat/West Schell Bench, Heusser Mountain, and George Town Ranch grazing allotments.

The Ely Maximum Security Prison is located west of Hercules Gap in Smith Valley. U.S. Highway 93 and Gondor Substation are located at the east end of the siting area.

There are several residences located in Smith and Steptoe Valleys, and there is a rural subdivision southwest of the siting area. No recreation land uses were identified.

Biology - The Hercules Gap siting area is dominated by grasslands, with Great Basin sage scrub and grassland on upland sites. Sage grouse wintering areas and leks, sandhill cranes, long-billed curlews, and bald eagles are also found in the area.

Earth - The valley bottoms in Smith and Steptoe Valleys are largely composed of alluvial deposits washed into the valley from surrounding mountain ranges. The alluvial soils of the valley have a potential for high hazard of water and wind erosion. Steptoe Creek, Murray Creek, and several other minor intermittent streams traverse the siting area. There are a few areas with potential for shallow ground water. Irrigated farmlands in this area are considered to be prime farmland. The Hercules Gap area has a high mineral potential. However, there are no known fossil localities identified.

Visual - The scenic quality in the vicinity of Hercules Gap and into Smith Valley was inventoried by BLM as Class B. However, other portions of the siting area are considered Class C. These areas are managed by the Ely District of the BLM as VRM Class III and Class IV. Most of the siting area is visible from rural residences in Smith and Steptoe valleys, and from U.S. Highway 93.

Cultural - The cultural inventory identified historic and pre-historic isolates and lithic scatters within this siting area.

Dry Lake Substation Siting Area

Land Use - The siting area is located in Dry Lake Valley, northeast of Las Vegas. Lands within the siting area are predominately administered by the Las Vegas District of the BLM with a small private land inholding. Nevada Power Company operates the Harry Allen Substation in the southwest portion of the siting area and holds a right-of-way grant for a 6,000 acre generation facility at the west end of Dry Lake Valley.

Existing land uses include several transmission lines and Harry Allen Substation, the Pecos-Reid #1 and #2 230kV transmission lines, and the Utah-Allen 345kV transmission line. In addition, the IPP-Adelanto 500kV DC transmission line and the Navajo-McCullough 500kV transmission line pass through the eastern edge of this siting area. Other land uses include the Union Pacific railroad and portions of the Dry Lake public grazing allotment. No recreation uses were identified.

Biology - The siting area is sparely vegetated, dominated by Mojave Desert Scrub vegetation which consists largely of creosote bush scrub, with isolated areas of saltbush around the Dry Lake Valley playa. Areas of desert tortoise habitat classified as Category II and III occur within the Dry Lake siting area. Bighorn Sheep habitat occurs in the foothills at the northern margins of this siting area in the Arrow Canyon Range.

Earth - This siting area is composed of alluvial deposits washed down from the Arrow Canyon and Dry Lake Ranges. The soils in the sparsely vegetated valley have a high hazard of water and wind erosion. Several small intermittent streams traverse the area. During major precipitation events the playa at the low point of Dry Lake Valley fills with water and has potential for shallow ground water. There are no known fossil localities identified in this siting area. The valley has some potential for oil and gas resources.

Visual - The scenic quality of Dry Lake Valley was inventoried as Class C and is managed by the Las Vegas District of the BLM as VRM Class IV. The siting area is visible from Interstate 15, except the portion that extends into the southern end of the Arrow Canyon Range. Though not located within the boundary of the siting area, U.S. Highway 93 also has open views into the western end of the siting area. Visually contrasting elements found in the area include Harry Allen Substation and numerous transmission lines.

Cultural - The historic Old Spanish Trail/Mormon Road crosses through this siting area. The historic townsite of Dry Lake has also been recorded. Several known cultural sites were identified in the area including prehistoric lithic scatters and historic isolates. In addition, the Dry Lake Range contains ethnohistoric resources including a Paiute Habitation Area and resource exploitation areas. The Dry Lake railroad siding and townsite are recorded historic sites.

Utah

Smelter Hills Substation Siting Area

Land Use - This siting area is located in an area west of Smelter Hills in the vicinity of Delta, Utah, encompassing portions of Links 520, 560, 571, and 650. Land are predominantly administered by the BLM, with a small portion administered by the State of Utah.

The siting area is primarily open range, covering a portion of the Little Drum grazing allotment. The area is bisected by the IPP to Adelanto 500kV DC and the Gondor to IPP 230kV transmission lines. Access into this area is by unimproved roads (two-track). There were no recreation land uses identified.

Biology - The siting area is composed of a mix of Great Basin sage scrub (usually shadscale rather than sage), grassland, and bare or sparsely vegetated land. "High value" pronghorn antelope habitat occurs in the vicinity.

Earth - The siting area is composed of Lake Bonneville deposits, and there are several minor intermittent drainages. These unconsolidated soils have a potential for high hazard of wind erosion especially in sparsely vegetated areas. There is a high potential for the location of numerous snail and bivalve fossils throughout this area.

Visual - The scenic quality of this area of the West Desert was inventoried as Class C and is managed as VRM Class IV by the Richfield District of the BLM. This area is not visible from sensitive viewpoints.

Cultural - There were no known high sensitivity cultural sites identified within this area.

Sevier Substation Siting Area

Land Use - This siting area is located in the Sevier River Basin southwest of Delta, Utah, and encompasses portions of Links 590 and 600. Lands are predominantly administered by the BLM, with a small portion administered by the State of Utah.

Although range is the primary land use in this siting area, it is of minimal quality. The siting area covers a portion of the Deseret grazing allotment. The Gondor to Pavant 230kV and the IPP to Adelanto 500kV DC transmission line cross the area. This area is remote and accessed only by unimproved roads.

Biology - The siting area is characterized by a mixture of greasewood and shadscale associations. Vegetation density is typically sparse, however, the vegetation on drainage banks can be quite dense.

Earth - This siting area is composed of Lake Bonneville deposits. The northern portion of the siting area encompasses the Sevier River and the Old Sevier River Channel. Several

intermittent drainages also occur in the area. Areas in the vicinity are prone to shallow ground water. Although there were no known fossil localities identified, Lake Bonneville deposits often contain numerous snail and bivalve fossils.

Visual - The scenic quality of this area was inventoried as Class C and is managed by the Richfield District of the BLM as VRM Class IV. This area is not visible from sensitive viewpoints.

Cultural - An ethnohistoric habitation area and resource exploitation area was identified in this siting area.

Intermountain Substation Siting Area

Land Use - This siting area is located adjacent to the Intermountain Generating Station, north of Delta and encompasses portion of Links 581 and 582. Approximately half of the lands in this siting area are private, and half are administered by the BLM.

The siting area covers a portion of the Smelter Mountain and McClintock grazing allotments. With the exception of the facilities at the Intermountain Generating Station, the IPP-Adelanto 500kV transmission line, the Gondor-IPP 230kV transmission line, and two water wells, there are few other land uses in this area.

Biology - This site is characterized by a mix of Great Basin sage scrub, grassland, and bare or sparsely vegetated land. There is "high value" pronghorn antelope habitat throughout this siting area.

Earth - The siting area is composed of alluvial deposits, and several small intermittent streams occur. In sparsely vegetated areas, there is a potential of a high hazard of wind erosion. There were no known fossil localities identified.

Visual - The scenic quality of this area was inventoried as Class C and is managed as VRM Class IV by the Richfield District of the BLM. The siting area is openly visible from a paved highway that accesses the Intermountain Generating Station, and to middleground and background views from rural residences in the vicinity. The power plant and transmission lines in the area would weaken visual contrasts.

Cultural - There were no known high sensitivity cultural sites within this area.

SUBSTATION SITING PROCESS

This section describes the siting process used to determine the locations of alternative substation and series compensation station sites within each of the siting areas described in the previous section.

Methods

The siting process used opportunity and constraint mapping to identify areas where a substation or series compensation station could feasibly be located. A set of engineering and environmental siting criteria were developed by project engineers and planners:

- a preference for flat sites with slopes of 0 percent to 5 percent
- proximity to improved access (e.g., improved roads, highways, railways)
- avoidance of sensitive environmental resources
  - sensitive plants and wildlife areas
  - sensitive cultural resources
  - incompatible land uses
  - sensitive views or scenic areas
  - streams, flood zones, erosive soils, faults, etc.
  - wetlands

Initially, the data collected and mapped for the inventory were digitized into the Dames & Moore's GIS. The resource features and values in the database were assigned levels of sensitivity based on the potential for adverse effects that would be expected to result from the construction of a facility. Sensitivity mapping for each resource was combined using GIS to generate maps of constraint areas. The GIS model separately determined engineering and environmental constraint areas before being combined to create composite opportunity and constraint maps for each of the siting areas. The composite constraint maps were analyzed to identify potential locations for facility sites where the potential for impacts would be minimized. Through this process one or more alternative sites were identified within each of the siting areas. These alternative sites were then assessed for potential impacts (refer to the subsequent section).

Results

This facility siting process resulted in identifying a total of twenty alternative facilities sites within the ten substation and series compensation station siting areas. The location of each alternative site is shown on the map found on the evaluation forms located at the end of this appendix.

IMPACT ASSESSMENT AND MITIGATION PLANNING

Each of the twenty alternative facility sites was assessed for potential impacts from the construction and operation of substations and series compensation stations. Because the substation siting process avoided most of the sensitive resource features and values, few significant impacts were identified.

Methods

The GIS impact assessment models quantified the potential impacts that would result from the construction and operation of a substation or series compensation station at each of the alternative sites within each siting area. These models determined the area of a resource feature or value that would be disturbed by each site. The model described the area of disturbance by impact levels (e.g., high, moderate, low, and no identifiable impact) and quantified the impacts in acres. The impact data generated by the GIS models are summarized on evaluation forms at the end of this section. The forms also illustrate the location of the alternative sites and the associated transmission line route segments and a scaled ranking by resource (e.g., biology, cultural, etc.).

Based on its overall rankings, one site was selected within each of the siting areas. The values on the scaled ranking range from 1 (least favored) to 10 (most favored).

The environmentally preferred substation site in the Ely area was determined through a comparison of the sites selected from the North Steptoe, Robinson Summit, and Hercules Gap siting areas. However, final selection of the preferred site depends on the environmentally preferred crosstie route from Ely to Delta. Similarly, the environmentally preferred site for a series compensation station in Elko County was determined by comparing the alternative sites selected from each of the U.S. Highway 93, Goshute Valley, and Thousand Springs siting areas. Again, the final selection of the series compensation station depends on the selection of the environmentally preferred route.

The environmentally preferred site for a substation in the Delta area was determined through an analysis that considered the three alternative routing approaches into the Delta area: Northern, Western, and Southern. Evaluation forms were used to analyze the potential impacts of each alternative substation and the associated transmission line segments. The environmentally preferred site was determined comparing the impacts of the preferred sites from each of the siting areas. The final section of substation site depends on the routing approach selected.

The environmentally preferred site for the southern terminus in Dry Lake siting area cannot be determined at this time because there are two possible routes for the transmission connection south of this area to the McCullough Substation area for the future Marketplace-Allen Transmission Project (MAT) proposed by Nevada Power Company (refer to "Environmentally Preferred Alternative" section in Chapter 2). One route could proceed straight south of substation sites 17, 18, or 19 through the Apex development and then southeast to the Gypsum Wash area before proceeding south through the Sunrise Mountain area and Henderson. The other possible routing alternative would begin at substation sites 18 or 20, proceeding south from the north end of the Dry Lake Range near Interstate 15, and then straight south to the Sunrise Mountain area and Henderson. Therefore, until a routing decision is made on the MAT, it would be premature to determine which substation site should be selected because this decision would likely be dependent on the MAT route to the south.

The current status of the Sunrise Mountain area as a WSA would prevent the MAT from being routed through this area.

The mitigation planning process recommended measures to minimize the area disturbed by construction activities and to rehabilitate, or restore affected resource features and values. The generic and selectively recommended mitigations measures are listed in Tables 4-1 and 4-2 at the end of Chapter 4.

Results

Where possible, a preferred alternative site was selected for each of the substation or series compensation station siting areas. In some cases, the selection of an environmentally preferred route determined which site was selected.

The selected sites within each siting area are described below:

- **Highway 93 Series Compensation Station Siting Area** - Alternative Site 1 is the preferred site, if Route D is selected. Although alternative Site 1 is located in a VRM Class III area, it would have fewer effects on views from U.S. Highway 93. Alternative Site 3 would have high potential for impacts to cultural resources. Alternative Site 2 would be more visible to views from U.S. Highway 93.

- **Thousand Springs Series Compensation Station Siting Area** - Alternative Site 5 is the preferred site if Route B or Route C was selected. This site would cause fewer impacts to sage grouse leks and habitat. Alternative Site 4 in the Thousand Springs Series Compensation Station Siting Area is the preferred site if Route A, E, or G is selected.

- **Goshute Valley Series Compensation Station Siting Area** - Alternative Site 6 is the preferred site and could be used by Routes A, B, C, E, F, or G. There is a known cultural site affected by alternative Site 7.

- **North Steptoe Substation Siting Area** - This site is located adjacent to the proposed site for the WPPP.

- **Robinson Summit Substation Siting Area** - Either, alternative Site 9 or 10 would be acceptable. However, because none of the alternative routes pass through this Site 9, Site 10 would be preferred. Both sites would have some potential effects to Ferruginous hawks and both are located in an area managed with VRM Class III.

- **Hercules Gap Substation Siting Area** - Alternative Sites 11 and 12 were eliminated from further consideration because of the potential impacts to the wetlands in the Bassett Lake area that would occur if a route used Link 292. The only other way to access these sites is along Link 350. The additional

transmission line required between Robinson Summit and Hercules Gap (Link 350) would cause unnecessary impact in this area.

- **Dry Lake Valley Substation Siting Area** - Alternative Sites 17, 18, and 20 are difficult to distinguish environmentally when considering all of the important environmental factors and potential impacts. Site 19 is also acceptable, partially because it is near the existing Harry Allen Substation, even though it may potentially cause slightly higher environmental impacts. However, because of the alternative site locations with respect to future transmission connections to the south, Sites 20 would only be appropriate if a route is chosen for the future MAT that would proceed south from the north end of the Dry Lake Range through Site 20 and then through the Sunrise Mountain area and Henderson. Likewise, Sites 17 and 19 would only be appropriate if a route is chosen for the future MAT that would proceed south through the Apex development then cutting southeast to the Gypsum Wash, then south to the Sunrise Mountain and Henderson areas. Site 18 would be an acceptable substation location regardless of how the future southern connection is made and is acceptable environmentally. A portion of the Site 17 is in a potential flood zone, Site 18 has some wind erosion potential, and Site 19 and 20 are within Category II desert tortoise habitat. Even though sites 19 and 20 are within Category II desert tortoise habitat, it is quite likely that any alternative site within this area will have similar concerns for desert tortoise.

Four alternative substation sites were identified in the vicinity of Delta, Utah within the three substation siting areas. Two alternative sites were identified at the Intermountain substation siting area, and one alternative site was identified at each of the Sevier and Smelter Knolls substation siting areas.

Selecting alternative substation sites included evaluating the transmission line connections from the alternative substation site to the Intermountain Generating Station. Impacts for the two parallel 345kV transmission lines required to connect a substation to the power plant are summarized on the forms at the end of this section.

In addition, each of the alternative Delta substation sites and its associated transmission lines segments was evaluated from three alternative routing approaches: the northern approach beginning at Link 451, the western approach beginning at Link 462, and the southern approach beginning at Link 630. The results of these evaluations are described below by routing approach:

- **Northern Approach** - Alternative Site 14, located adjacent to the Intermountain Generating Station, is the preferred site for this approach. The high visual impacts indicated for Site 14 are associated with the employee apartments at the Intermountain Generating Station. Site 13 would require approximately 3.3 additional miles of two 345kV transmission lines. Alternative Sites 15 and 16 would result in greater overall impacts from additional mileage of two 345kV transmission lines and construction of improved roads to access these sites.

- **Western Approach** - Alternative Site 14, located adjacent to the Intermountain Generating Station, is the preferred site for this approach. The high visual

impacts are associated with the employee apartments at the plant. Though the connecting transmission lines for this approach would follow existing transmission line corridors, greater impacts would result for alternative Sites 15 and 16 where two 345kV transmission lines would be needed to connect these sites to the Intermountain Generating Station. In addition, the construction of improved roads to access these sites would disturb a larger area.

- **Southern Approach** - Either, alternative Site 13 or 14 would be acceptable for this approach. Site 13 would require approximately 3.3 additional miles of two 345kV transmission lines. Site 14 is located adjacent to the Intermountain Generating Station. The high visual impacts indicated for Site 14 are associated with employee apartments at the Intermountain Generating Station. Alternative Sites 15 and 16 would result in greater overall impacts from additional mileage of two 345kV transmission lines and construction of improved roads to these sites.

Diagrams at the end of this section illustrate the locations of alternative substation and series compensation station site in relation to associated route segments (links). These diagrams also summarize impacts (e.g., H = high, M = moderate, and L = low) and/or area of disturbance predicted for each site, and associated links. In addition, the ranking for each site is indicated by resource. Also, refer to the Alternative Routes map in the Map Volume for detailed site locations. Table E-1 summarizes the potential impacts for each alternative site.

TABLE E-1

Alternative Substation Site Impact Summary

	RESOURCE				
	BIOLOGY	EARTH	LAND USE	CULTURAL	VISUAL
HIGHWAY 93 SERIES COMPENSATION STATION SITES					
SITE 1	No impacts identified	Low impacts to intermittent streams (22 ac.)	Existing 138kV transmission line, 89 acres of sage scrub 89 acres of HD grazing allotment removed from production	Moderate to high impacts to a historic railroad	50 acres of this site visible from U.S.Highway 93, entire site Class C scenic quality, site would not comply with VRM Class II
Site 2	No impacts identified	Low impacts to intermittent streams (22 ac.)	Existing 138kV transmission line, 89 acres of sage scrub 89 acres of Town Creek grazing allotment removed from production	High impacts to cultural viewpoints from the Calif. Trail Moderate to high impacts to a historic railroad	Low impacts to residences, moderate impacts to U.S. Highway 93, Class C scenic quality, VRM Class IV
Site 3	No impacts identified	Low impacts to intermittent streams (22 ac.)	11 acres of sage scrub, 89 acres of Town Creek grazing allotment removed from production	High impacts to cultural viewpoints from the Calif. Trail. Mod. to high impacts to hist. railroad	Low impacts to residences, low impacts to U.S.Hwy 93 small portion of site Class B scenic quality, VRM Class IV
THOUSAND SPRINGS SERIES COMPENSATION STATION SITES					
Site 4	Moderate impacts to Pronghorn Antelope habitat (89 ac.)	Low impact to intermittent streams (28 ac.)	72 acres of sage scrub, 17 acres of HD grazing allotment removed from production	low to moderate impacts to pre-historic isolates and lithic scatters	Entire site Class C scenic quality, VRM Class IV

Table E-1

Alternative Substation Site Impact Summary

	RESOURCE				
	BIOLOGY	EARTH	LAND USE	CULTURAL	VISUAL
THOUSAND SPRINGS SERIES COMPENSATION STATION SITES (Cont.)					
Site 5	No impacts identified	No impacts identified	83 acres sage scrub, 83 acres of HD grazing allotment removed from production	low to moderate impacts to pre-historic isolates and lithic scatters	Entire site Class C scenic quality, VRM Class IV
GOSHUTE VALLEY SERIES COMPENSATION STATION SITES					
Site 6	High impacts to Sage Grouse leks (89 ac.)	Low impact to intermittent streams (22 ac.)	11 acres of grassland, 78 acres of sage scrub 89 acres of Big Springs grazing allotment removed from production	High impacts to a pre-historic antelope trap	Entire site visible from Nevada State Highway 233, Class C scenic quality, VRM Class IV
Site 7	High impacts to Sage Grouse leks (89 ac.)	Low impact to intermittent streams (44 ac.)	adj. to existing railroad, 6 ac. natural bare soil, 28 acres of sage scrub, 56 acres of grassland, 84 acres of Big Springs grazing allotment removed from production	High impacts to a historic railroad and ranch community High impacts to a pre-historic antelope trap	Entire site visible from State Highway 233, entire site Class C scenic quality, VRM Class IV
NORTH STEPTOE SUBSTATION SITE					
Site 8	Moderate impacts to Long-Billed and Sandhill Crane	Low impact to high wind erosion (50 ac.), low impact to shallow ground water (83ac.)	83 acres of grassland, 6 acres of sage scrub 89 acres of Cherry Creek grazing allotment removed from production	No impacts identified	Low impacts to U.S.Hwy. 93, entire site Class C scenic quality, VRM Class III

Table E-1

Alternative Substation Site Impact Summary

	RESOURCE				
	BIOLOGY	EARTH	LAND USE	CULTURAL	VISUAL
ROBINSON SUMMIT SUBSTATION SITES					
Site 9	High impact to Ferruginous Hawk habitat (89 ac.)	No impacts identified	Existing 230kV transmission line, 89 acres of sage scrub 89 acres of Moorman Ranch grazing allotment removed from production	No impacts identified	Entire site visible from U.S. Highway 50, Class B scenic quality, site would not comply with VRM Class II
Site #10	High impact to Ferruginous Hawk habitat (89 ac.)	Moderate impact to intermittent streams (33 ac.)	Existing 230kV transmission line, 89 acres of sage scrub 89 acres of Thirty Mile Spring grazing allotment removed from production	No impacts identified	Entire site visible from U.S. Highway 93, Class C scenic quality, VRM Class III
HERCULES GAP SUBSTATION SITES					
Site 11	Moderate impacts to Long-Billed and Sandhill Crane	No impacts identified	Existing 230kV transmission line, 72 acres of sage scrub, 17 acres of grassland 89 acres of George Town Ranch grazing allotment removed from production	low to moderate impacts to pre-historic isolates and lithic scatters	Low impacts to residences, entire site visible from U.S. Highway 93, Class C scenic quality, VRM Class III
Site 12	Moderate impacts to Long-Billed and Sandhill Crane	Low impacts to high wind erosion (89 ac.)	Existing 230kV transmission line, 89 acres of sage scrub, 89 acres of Copper Flat/W. Schell B grazing allotment removed from production	low to moderate impacts to pre-historic isolates and lithic scatters	Low impacts to residences, entire site visible from U.S. Highway 93, entire site visible from local access road, Class C scenic quality VRM Class III

Table E-1

Alternative Substation Site Impact Summary

	RESOURCE				
	BIOLOGY	EARTH	LAND USE	CULTURAL	VISUAL
INTERMOUNTAIN SUBSTATION SITES					
Site 13	No impacts identified	remove prime farmland from production (44ac.), low impact to intermittent streams (44 ac.), low impact to shallow ground water (44 ac.)	89 acres of sage scrub, existing oil pipeline 89 acres of Smelter Mtn. grazing allotment removed from production	No impacts identified	Low impact to residences, entire site visible from local access road, Class C scenic quality, VRM Class IV
Site 14	No impacts identified	remove prime farmland from production (22ac.), low impact to intermittent streams (72 ac.), low impact to high wind ersion (67 ac.)	83 acres of sage scrub, 6 acres of grassland, 89 acres of McClintock grazing allotment removed from production	No impacts identified	25% of site would be low impact to residences, 75% of site would be moderate impact to residences, entire site is visible from local access road, 75% of site Class C scenic quality, VRM Class IV
SMELTER HILLS SUBSTATION SITE					
Site 15	No impacts identified	No impacts identified	22 acres of sage scrub, 67 acres of grassland, 89 acres of Little Drum grazing allotment removed from production, existing 230kVnd 500kV transmission line	No impacts identified	Class C scenic quality, VRM Class IV

Table E-1

Alternative Substation Site Impact Summary

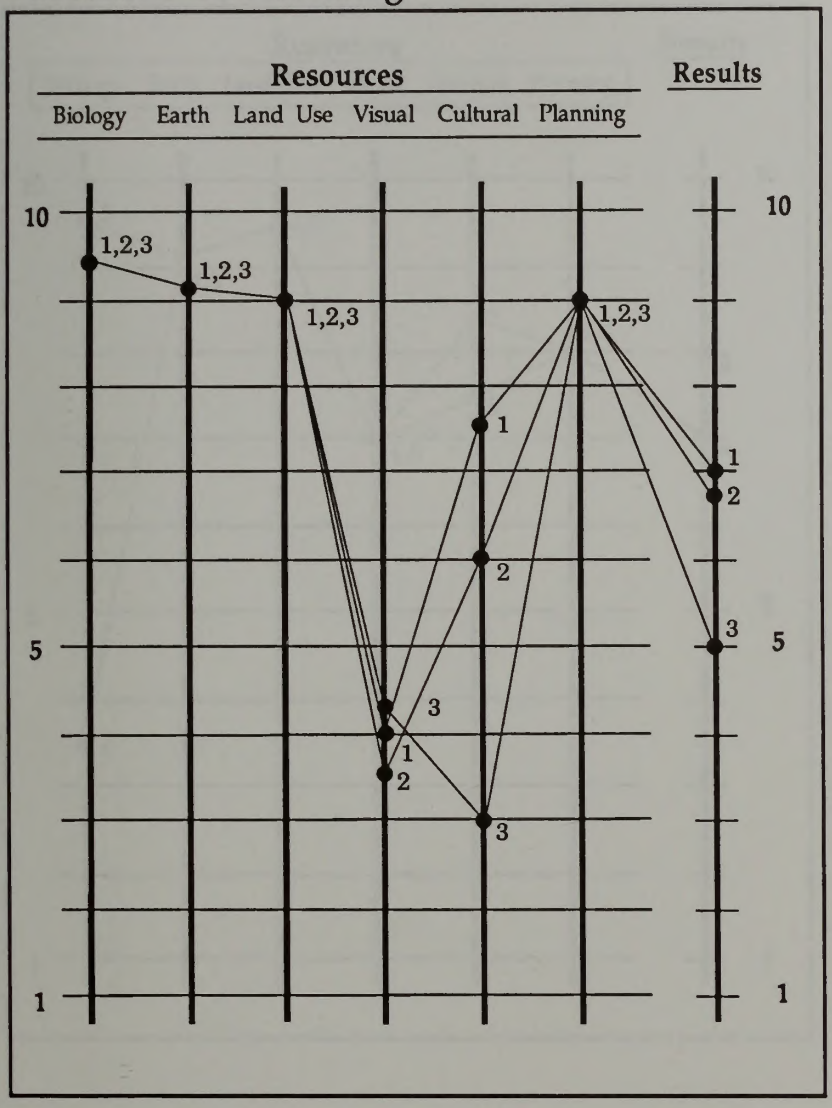
	RESOURCE				
	BIOLOGY	EARTH	LAND USE	CULTURAL	VISUAL
SEVIER SUBSTATION SITE					
Site 16	No impacts identified	Low impact to shallow groundwater (89 ac.)	89 acres of sage scrub, existing 230kV transmission 89 acres of Deseret grazing allotment removed from production	moderate impact to ethnohistoric habitation resource exploitation areas.	Entire site Class C scenic quality, VRM Class IV
DRY LAKE SUBSTATION SITES					
Site 17	No impacts identified	6 acres of natural bare soil, 72 acres of sage scrub, 12 acres of playa, entire site potential flood area, low impact to high hazardous water erosion	No impacts identified	High impacts to the Historic Old Mormon/ Spanish Trail	Entire site visible from I-15 & US 93, VRM Class IV
Site 18	Moderate impact to *A. triquetrus*	50 acres of sage scrub, 39 acres of playa, 83 acres of potential flood area, 6 acres of alkali flat/ potential flood area	No impacts identified	High impacts to the Historic Old Mormon/ Spanish Trail	Entire site visible from I-15 & US 93, VRM Class IV
Site 19	Moderate impact to Desert Tortoise habitat (89 acres), Moderate impact to *A. triquetrus*	89 acres of sage scrub, low impact to high hazardous water erosion (72 ac.)	Existing 500 kV transmission line	High impacts to the Historic Old Mormon/ Spanish Trail	Entire site visible from I-15 & US 93, entire site visible from cultural viewshed, VRM Class IV

Table E-1

Alternative Substation Site Impact Summary

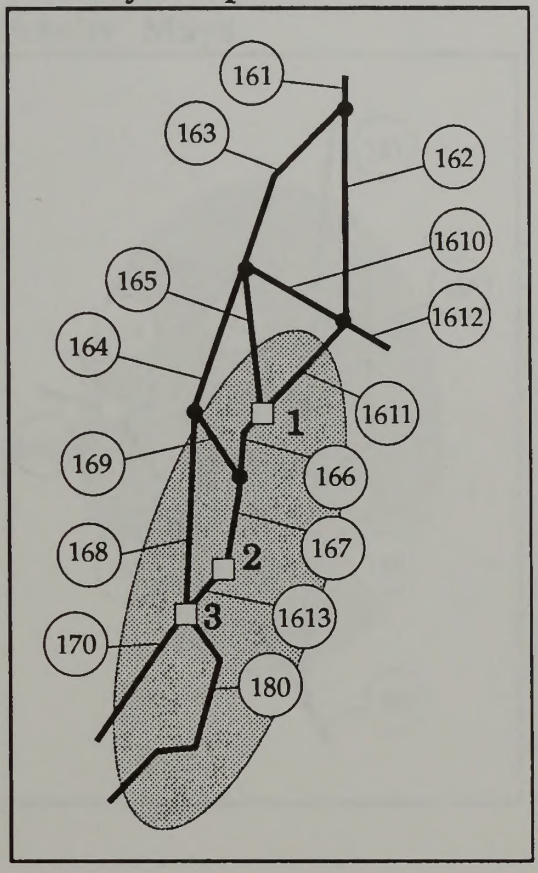
	RESOURCE				
	BIOLOGY	EARTH	LAND USE	CULTURAL	VISUAL
DRY LAKE SUBSTATION SITES (Cont.)					
Site 20	No impacts identified	89 of sage scrub	No impacts identified	High impacts to the Historic Old Mormon/ Spanish Trail	Entire site visible from I-15 & US 93, entire site visible from cultural viewshed, VRM Class IV.

Substation Site Ranking



Highway 93 Series Compensation Station Siting Area

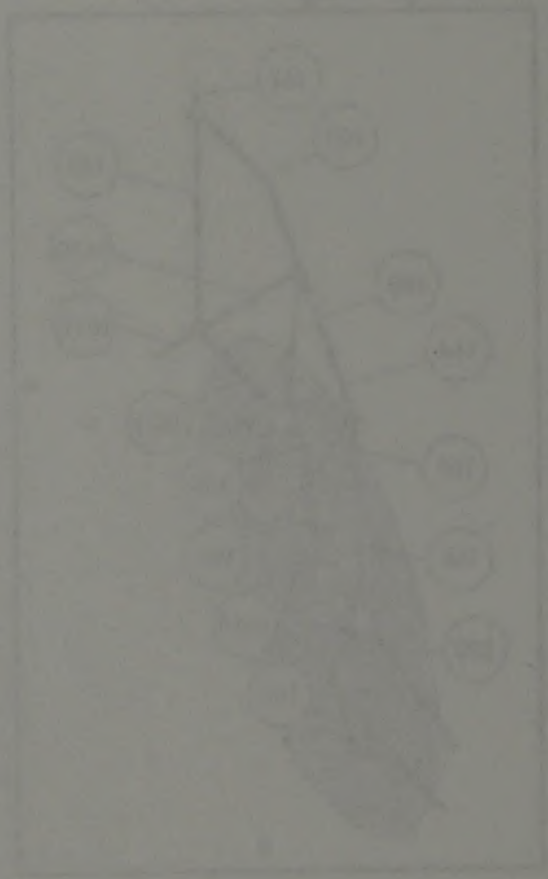
Vicinity Map

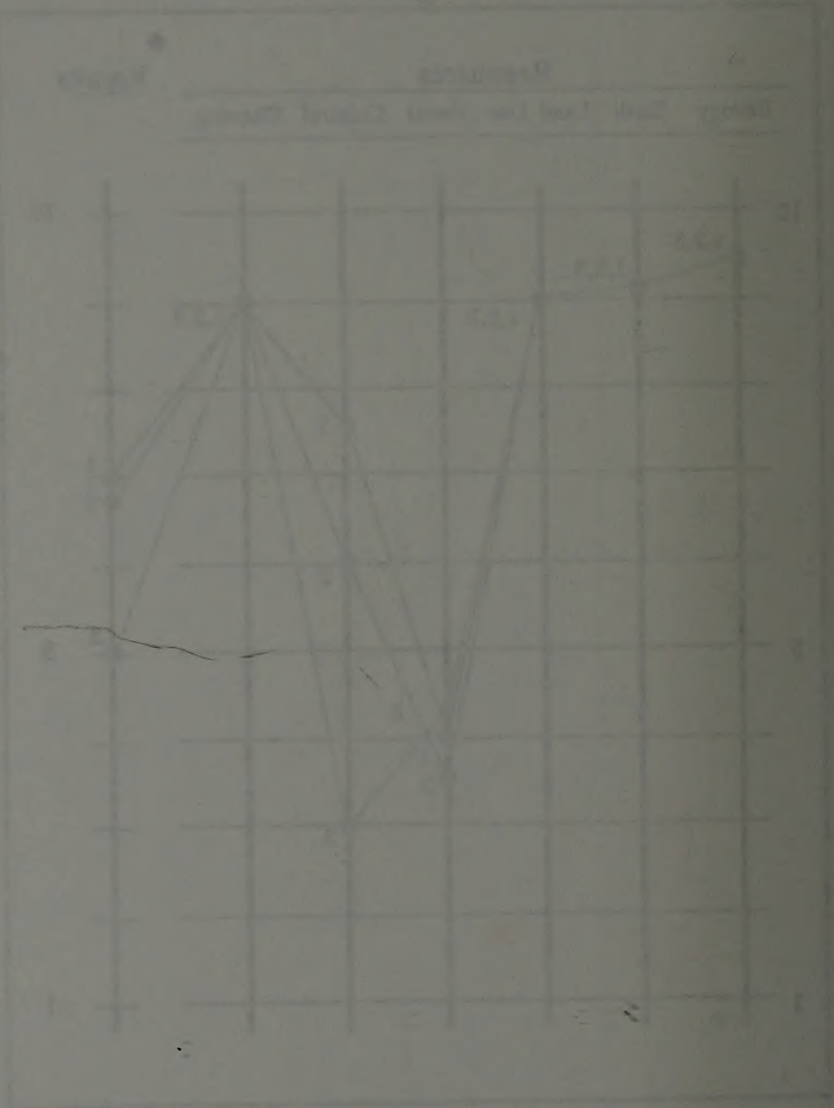


Impact Summary Table (in acres)

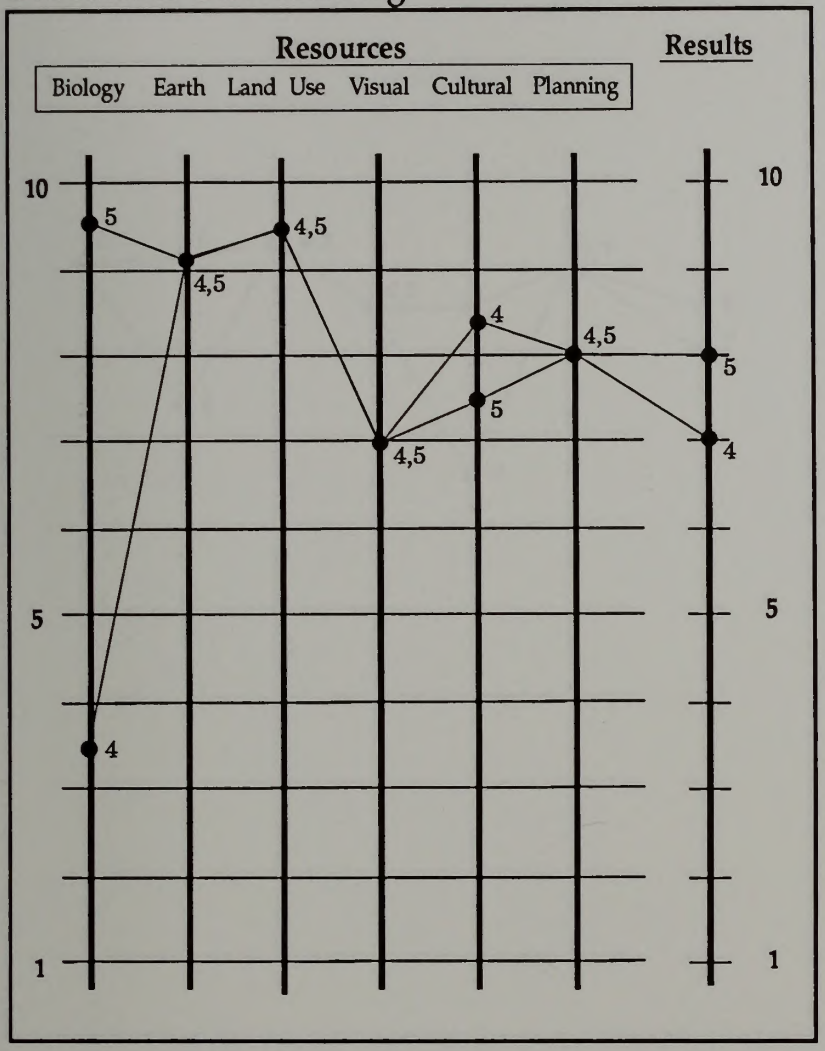
Alternative Substation Site	Biology			Earth			Land Use			Cultural			Visual				Comments
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
1	—	—	—	22	—	—	—	—	—	—	—	—	128	50	—	89	within VRM Class III area
2	—	—	—	22	—	—	—	—	—	—	—	—	84	89	—	—	more visible from U.S. Highway 93
3	—	—	—	22	—	—	—	—	—	—	72	—	256	89	—	—	impacts cultural sites, highest visibility from highway

Alternative Facility Site Evaluation Form



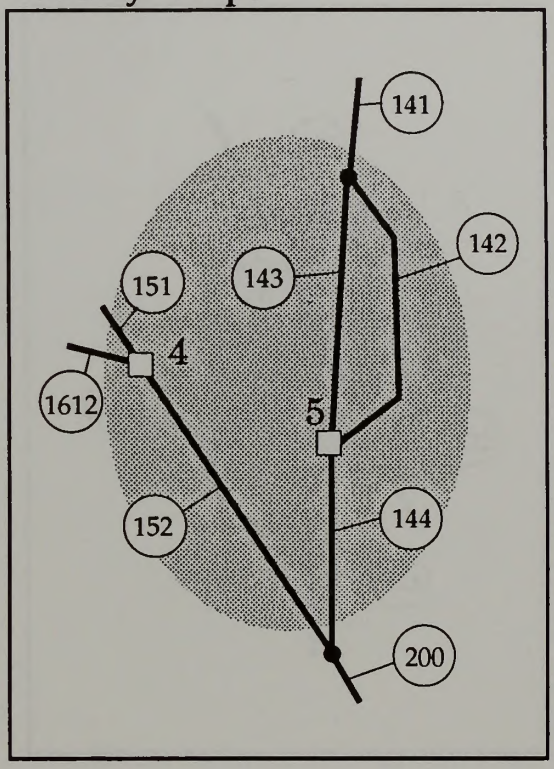


Substation Site Ranking



Thousand Springs Series Compensation Station

Vicinity Maps

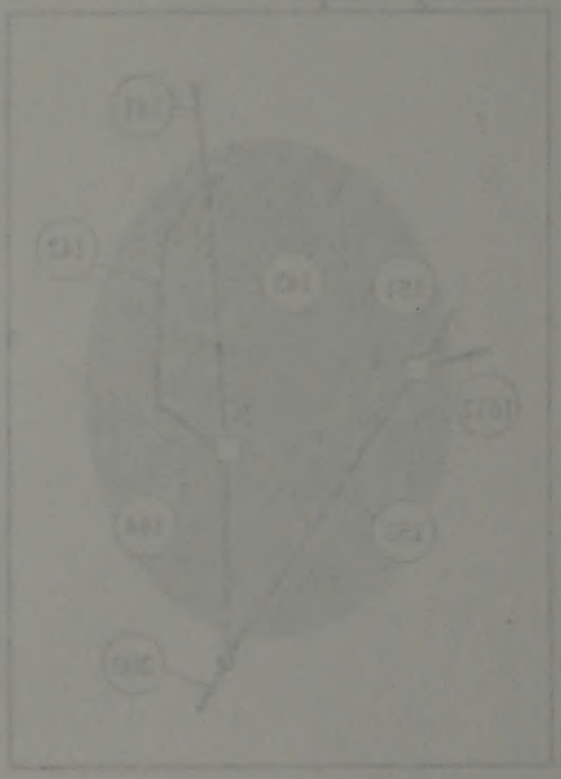


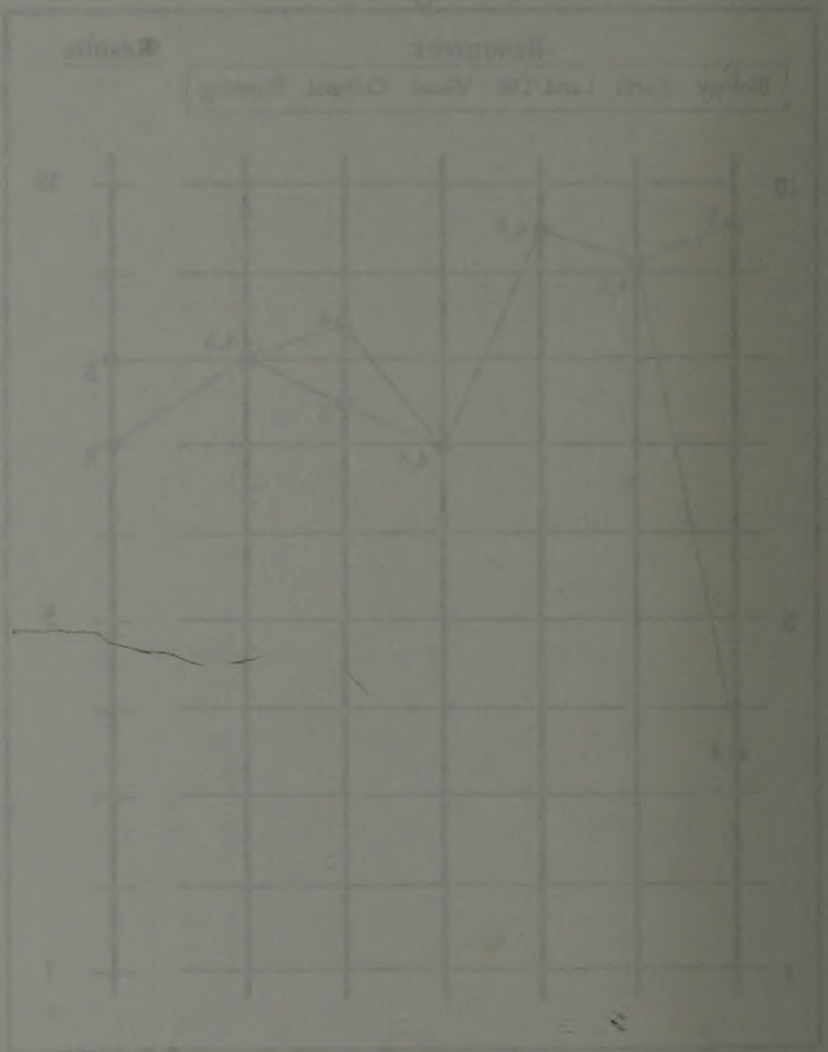
Impact Summary Table (in acres)

Alternative Substation Site	Biology			Earth			Land Use			Cultural			Visual				Comments
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
4	—	89	—	117	—	—	—	—	—	—	—	—	89	—	—	—	
5	—	—	—	89	—	—	—	—	—	—	—	—	89	—	—	—	Fewer sage grouse effects

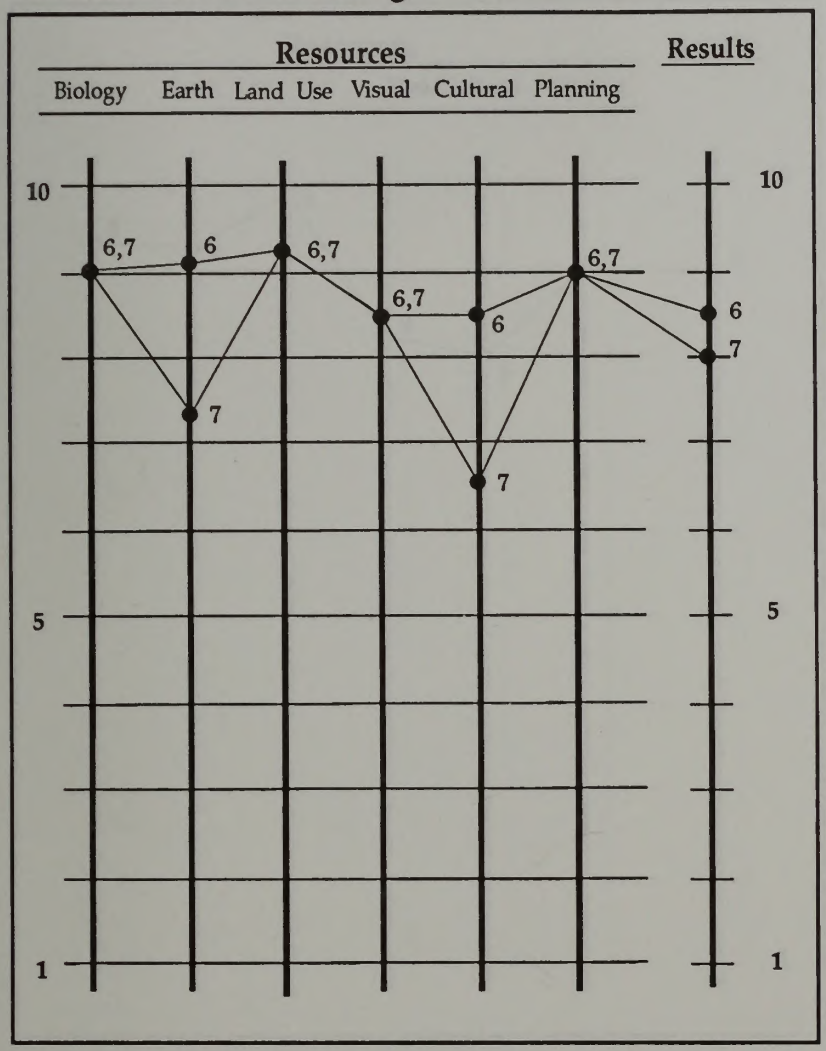
Alternative Facility Site Evaluation Form

APPENDIX E



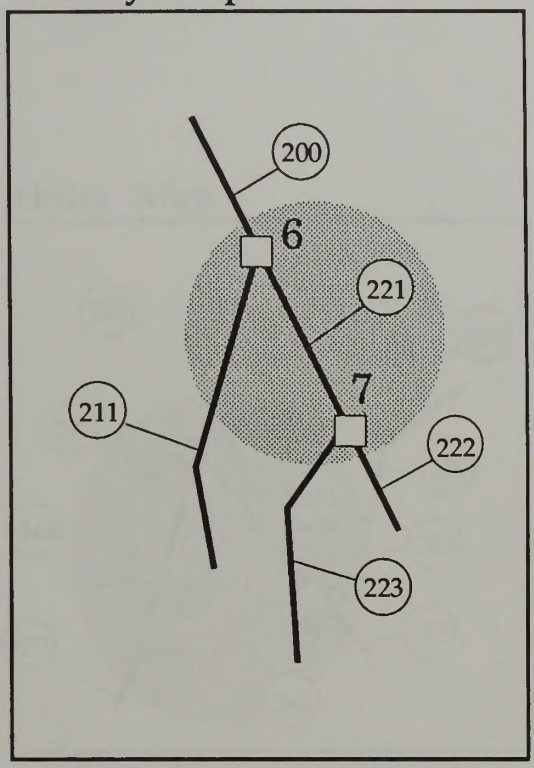


Substation Site Ranking



Goshute Valley Series Compensation Station

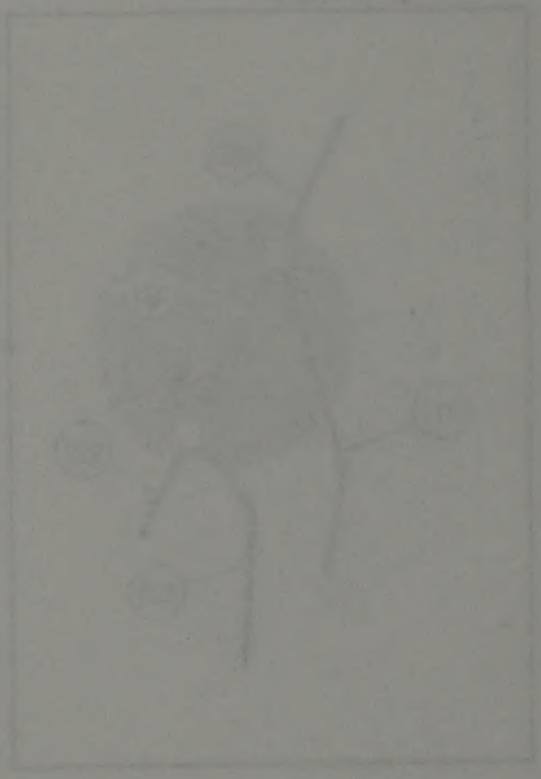
Vicinity Maps



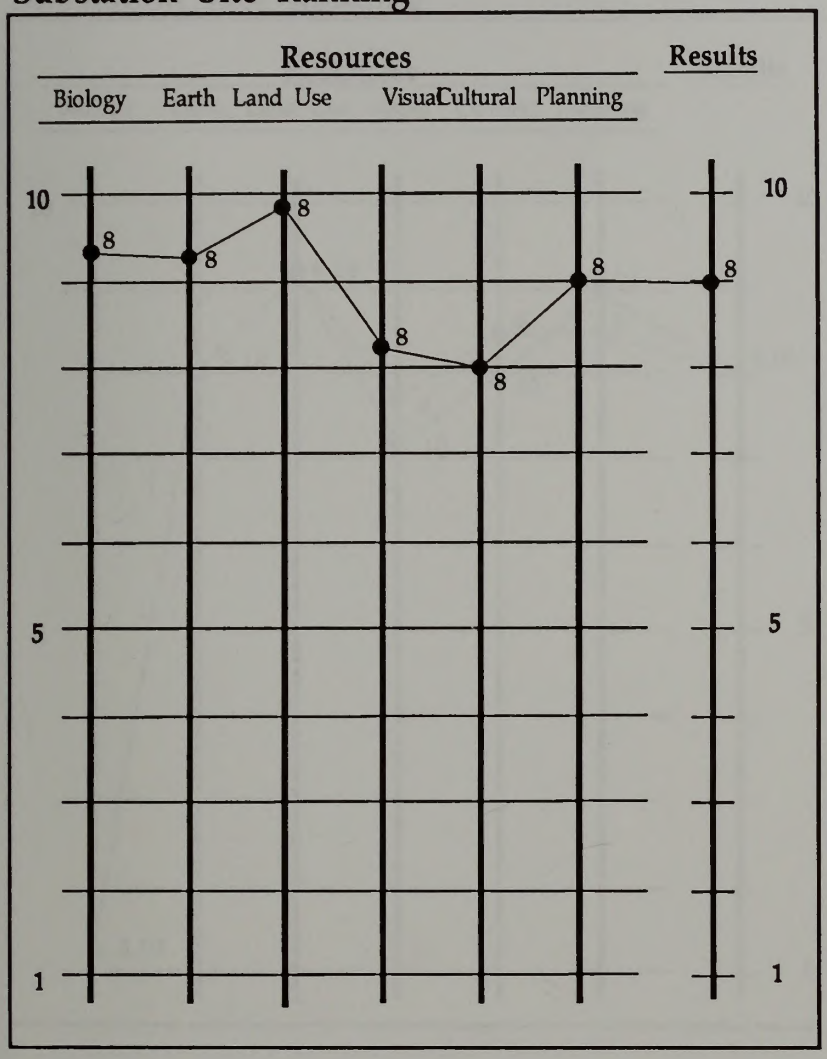
Impact Summary Table (in acres)

Alternative Substation Site	Biology			Earth			Land Use			Cultural			Visual				Comments
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
6	—	—	89	22	—	—	—	—	—	—	—	—	89	—	—	—	
7	—	—	89	44	—	—	—	—	—	—	72	—	89	—	—	—	In potential flood zone cultural site

Alternative Facility Site Evaluation Form

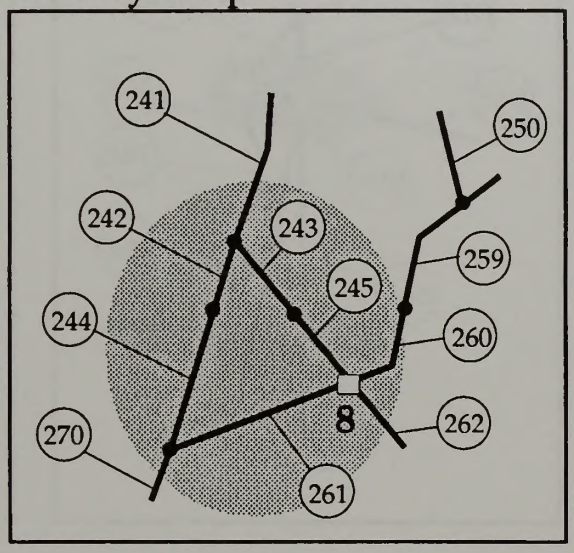


Substation Site Ranking



North Steptoe Substation Siting Area

Vicinity Map

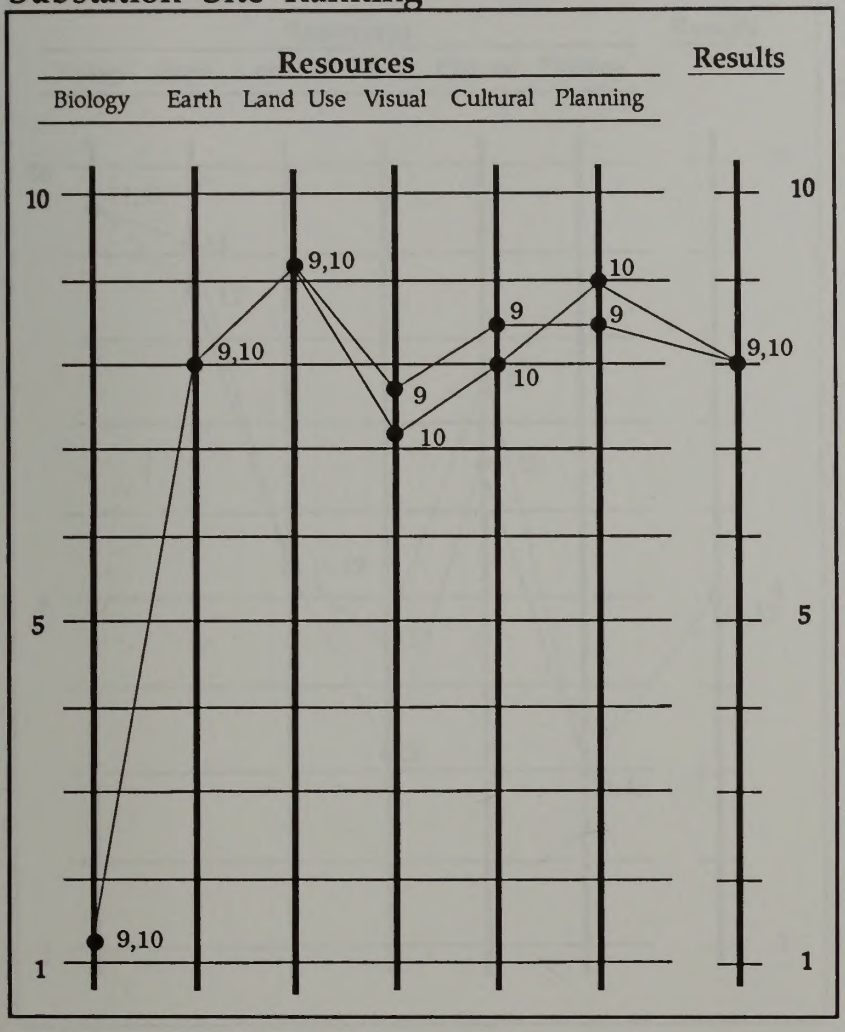


Impact Summary Table (in acres)

Alternative Substation Site	Biology			Earth			Land Use			Cultural			Visual				Comments
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
8	—	89	—	139	—	—	—	—	—	—	—	—	178	50	—	89	VRM Class III area, adjacent to proposed site of WPPP, longbilled curlew, sandhill crane

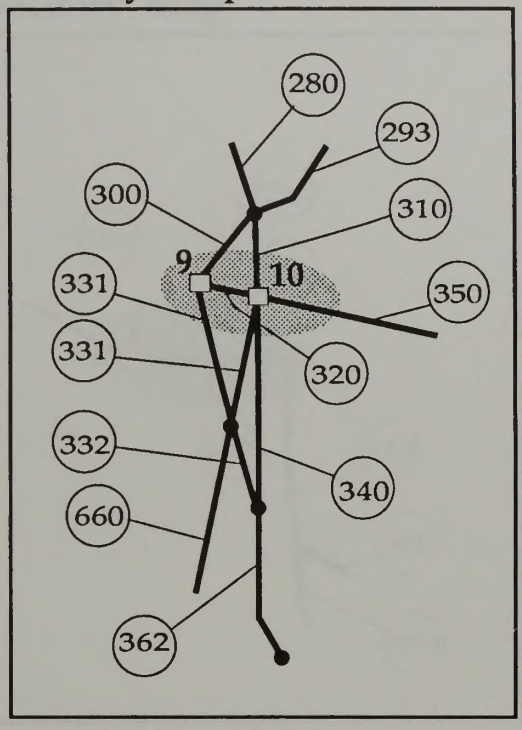
Alternative Facility Site Evaluation Form

Substation Site Ranking



Robinson Summit Substation Siting Area

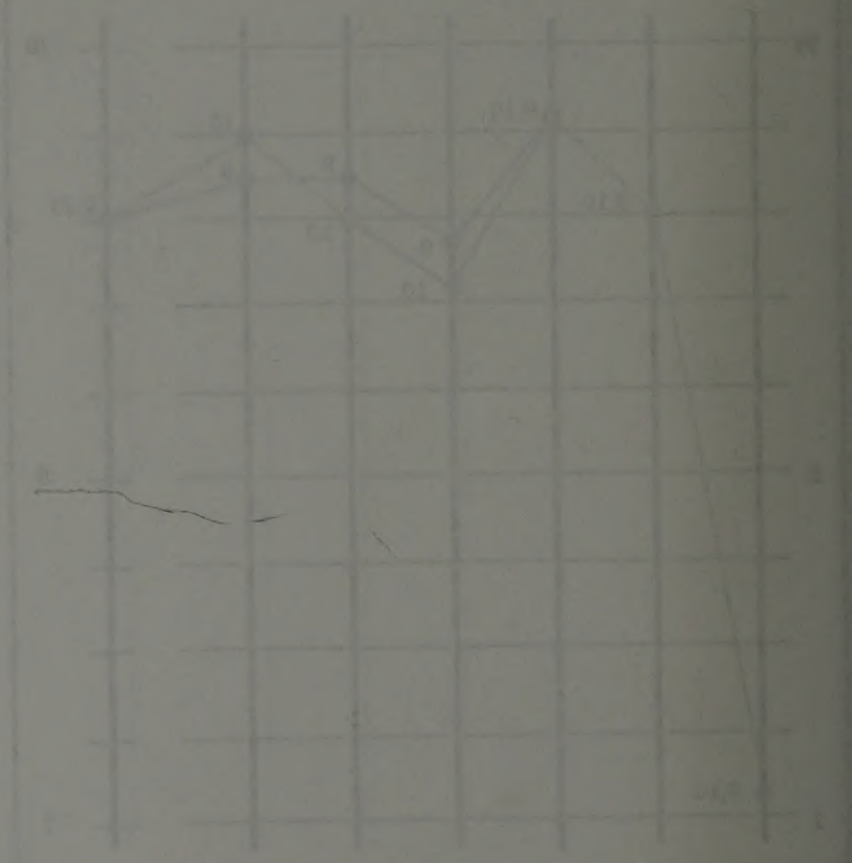
Vicinity Map



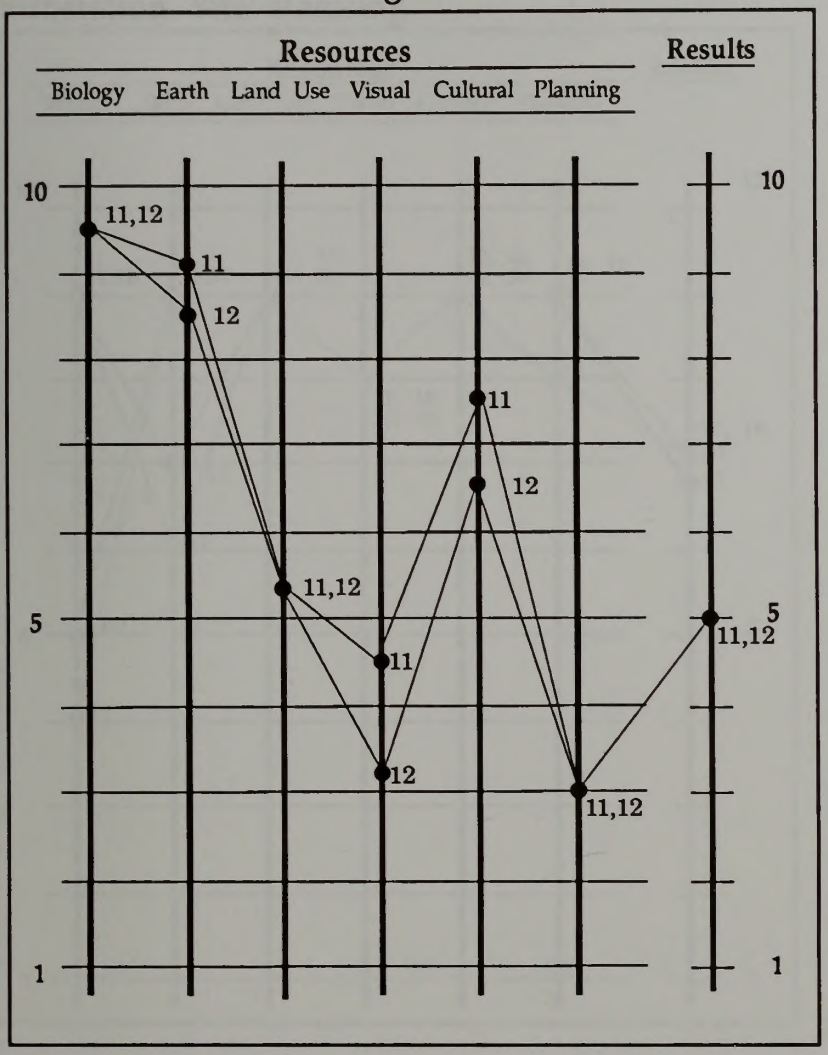
Impact Summary Table (in acres)

Alternative Substation Site	Biology			Earth			Land Use			Cultural			Visual				Comments
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
9	—	—	89	—	—	—	—	—	—	—	—	—	56	23	—	89	VRM Class III area, ferruginous hawks
10	—	—	89	—	33	—	—	—	—	—	—	6	89	89	—	89	VRM Class III area, ferruginous hawks cultural site

Alternative Facility Site Evaluation Form

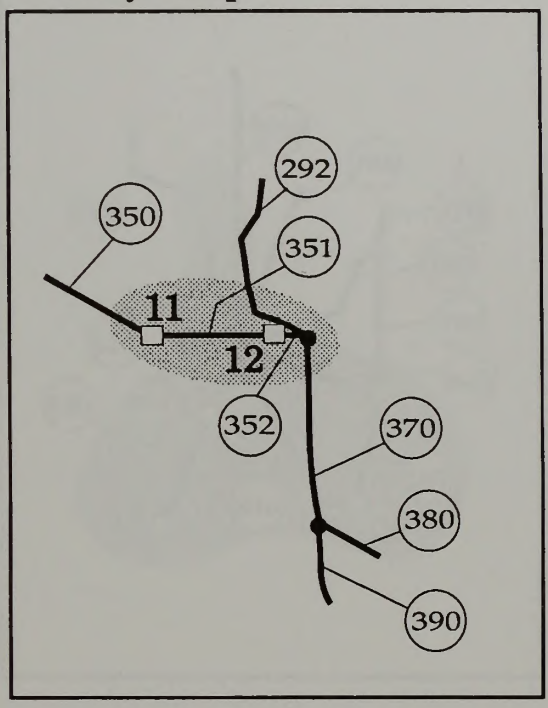


Substation Site Ranking



Hercules Gap Substation Siting Area

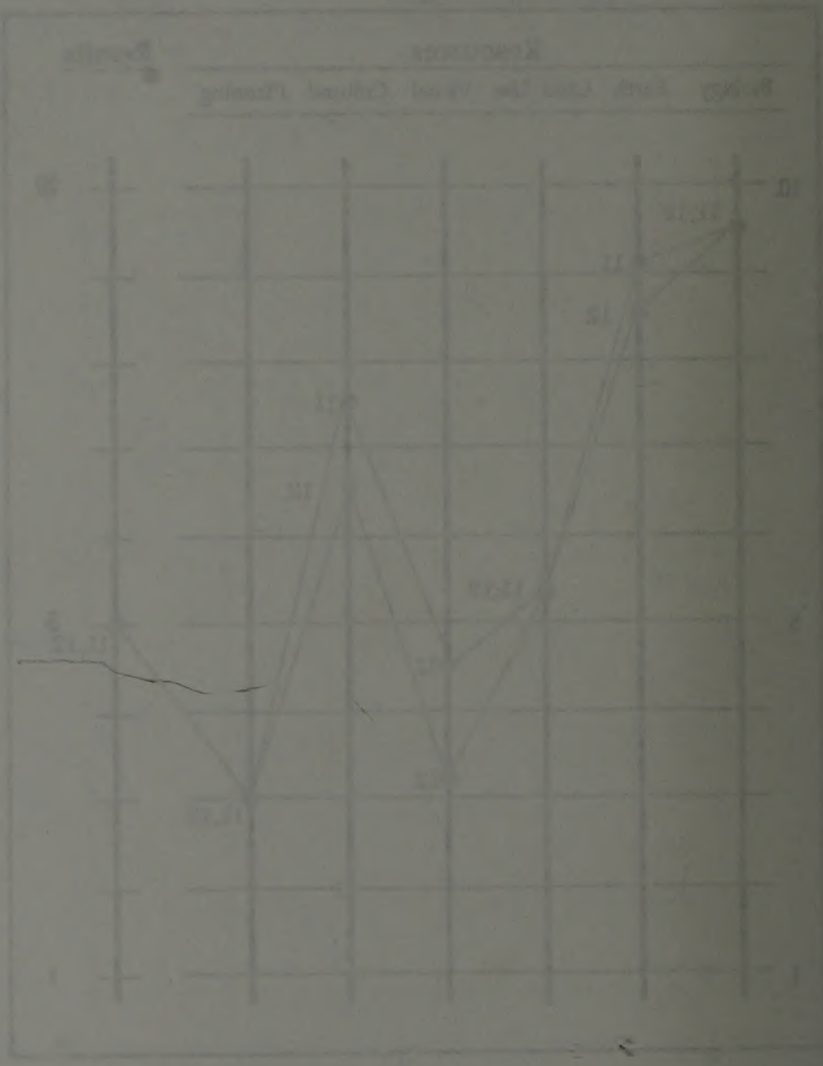
Vicinity Map



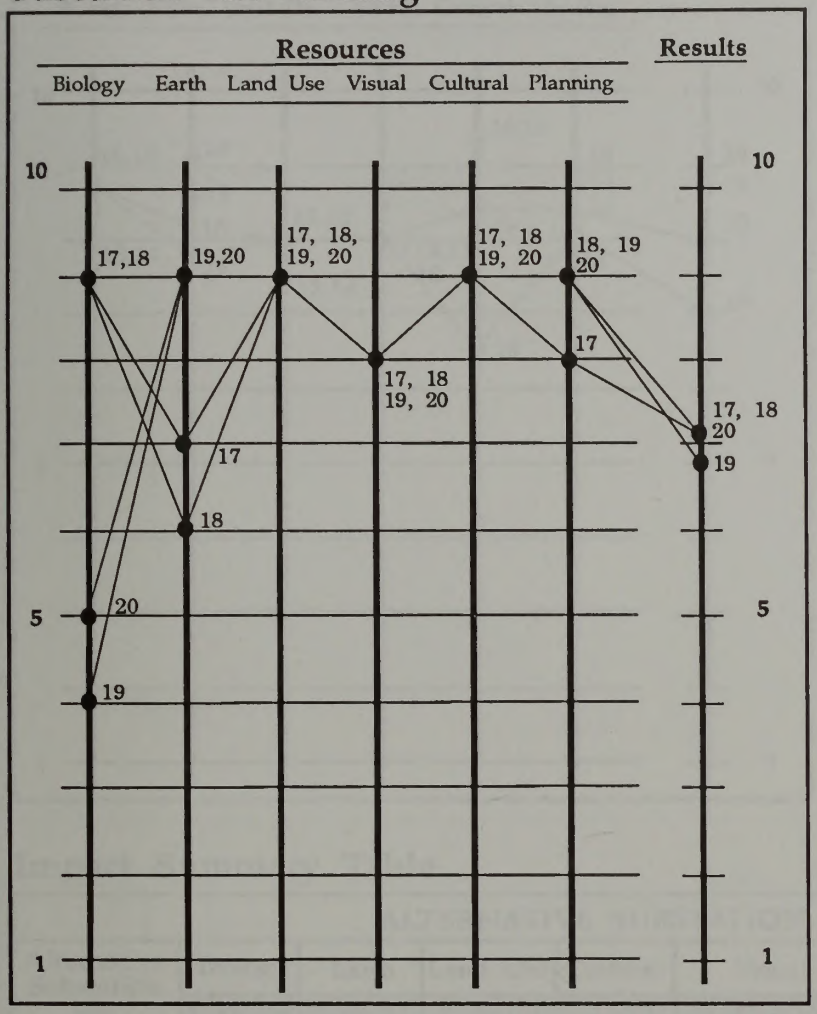
Impact Summary Table (in acres)

Alternative Substation Site	Biology			Earth			Land Use			Cultural			Visual				Comments
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
11	—	89	—	—	—	—	—	—	—	22	67	—	89	178	89	89	VRM Class III Longbilled curlew, Sand Hill crane
12	—	89	—	89	—	—	—	—	—	—	—	—	89	356	89	89	VRM Class III Longbilled curlew, Sand Hill crane

Alternative Facility Site Evaluation Form

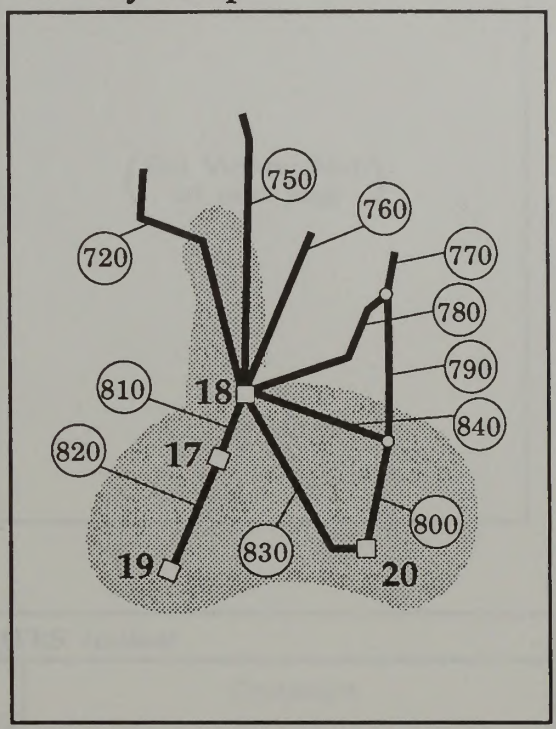


Substation Site Ranking



Dry Lake Substation Siting Area

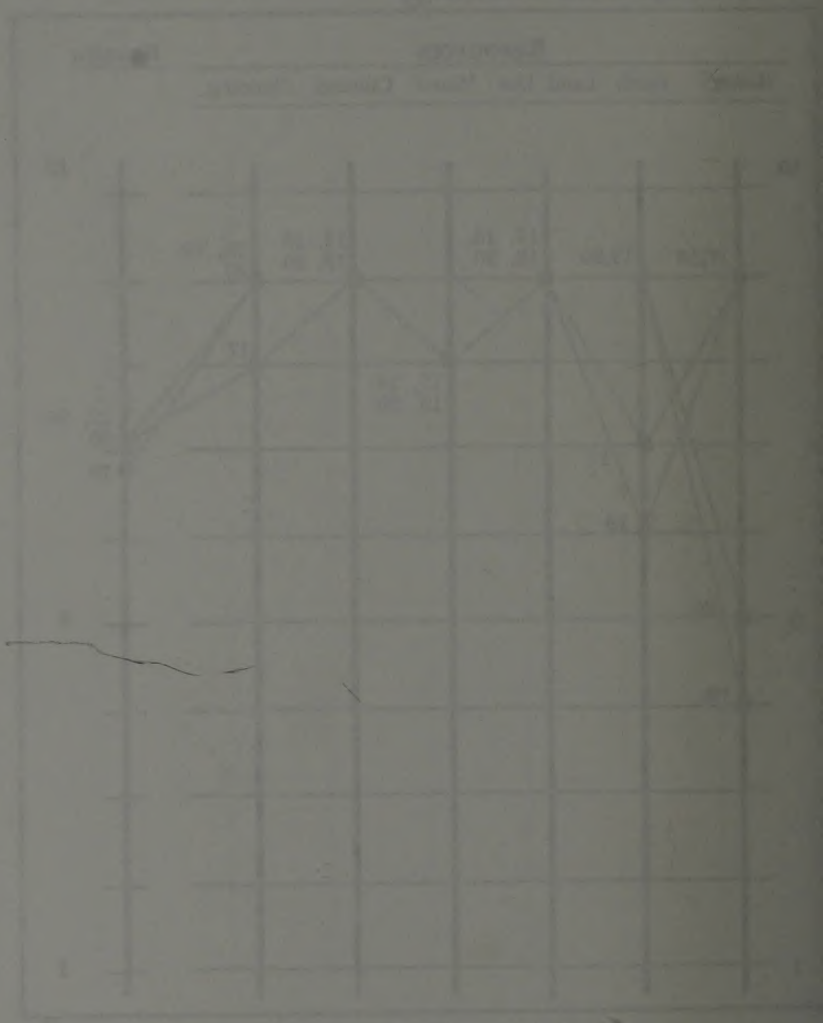
Vicinity Map



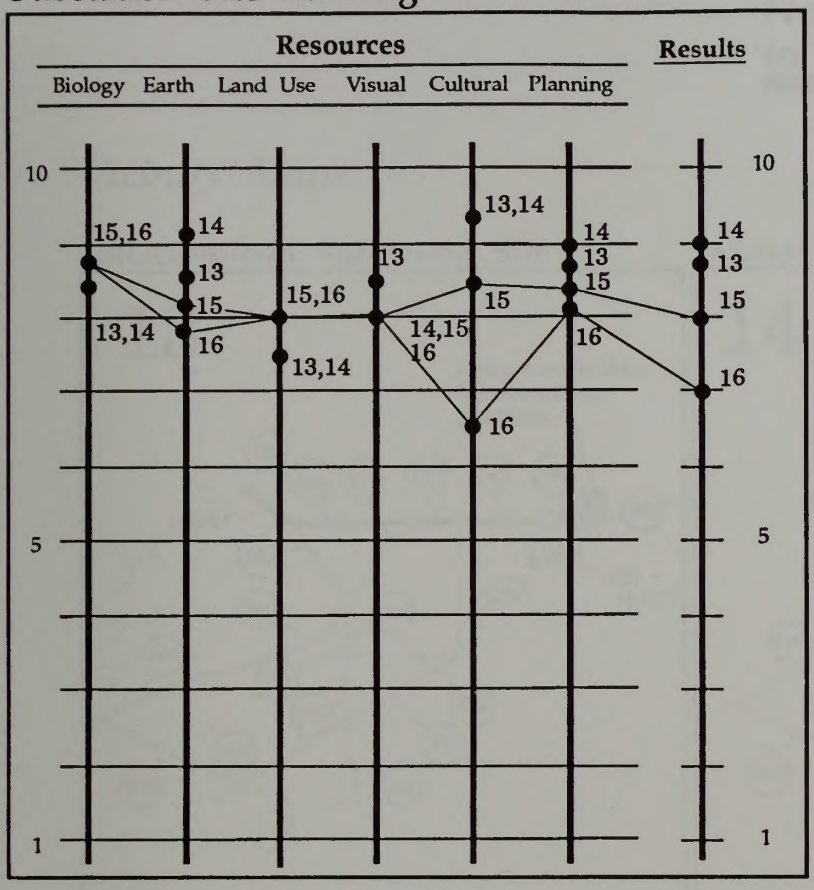
Impact Summary Table (in acres)

ALTERNATIVE SUBSTATION SITES																		
Substation Site	Biology			Earth			Land Use			Cultural			Visual				Comments
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
17	–	–	–	44	3	–	–	–	–	–	–	–	89	–	–	–	flood potential
18	–	–	–	–	56	–	–	–	–	–	–	–	89	–	–	–	wind erosion potential
19	–	89	–	–	–	–	–	–	–	–	–	–	89	–	–	–	Cat. II desert tortise habitat
20	–	67	–	–	–	–	–	–	–	–	–	–	89	–	–	–	Cat. II desert tortise habitat

Alternative Facility Site Evaluation Form



Substation Site Ranking



Northern Routing Approaches

Delta Substation Sites

(See Vicinity Map on next page)

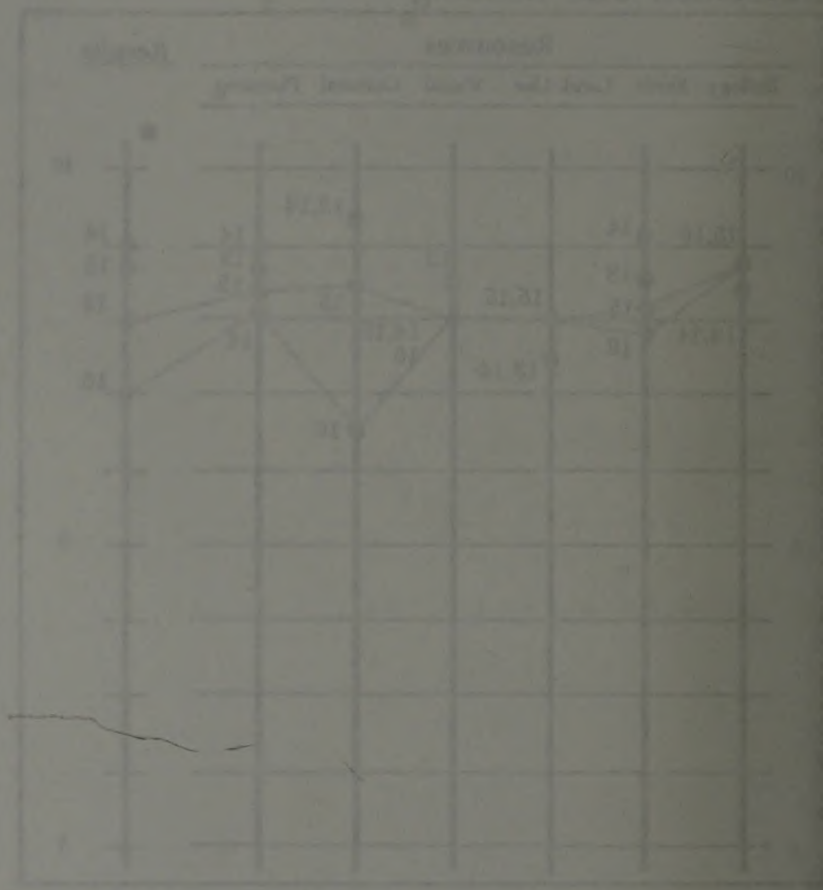
Impact Summary Table

ALTERNATIVE SUBSTATION SITES (miles)																	
Alternative Substation Site	Biology			Earth			Land Use			Cultural			Visual				Comments
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
13	–	–	–	88	–	–	–	44	–	–	–	–	89	–	–	–	Near IPP on prime farmland
14	–	–	–	89	–	–	–	22	–	–	–	–	61	67	22	–	Closest to IPP
15	–	–	–	89	–	–	–	–	–	–	–	–	89	–	–	–	
16	–	–	–	89	–	–	–	–	–	–	–	–	–	–	–	–	

TWO 345kV TRANSMISSION LINES (miles)																	
Site	Biology			Earth			Land Use			Cultural			Visual				
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
13	–	–	–	–	–	–	–	–	–	–	–	–	–	2.3	0.4	–	
14	–	–	–	–	–	–	–	–	–	–	–	–	–	0.2	–	–	
15	–	–	–	–	–	–	–	–	–	–	0.2	–	–	5.4	0.6	–	
16	–	–	–	–	–	–	–	–	–	–	0.2	–	–	5.4	0.6	–	

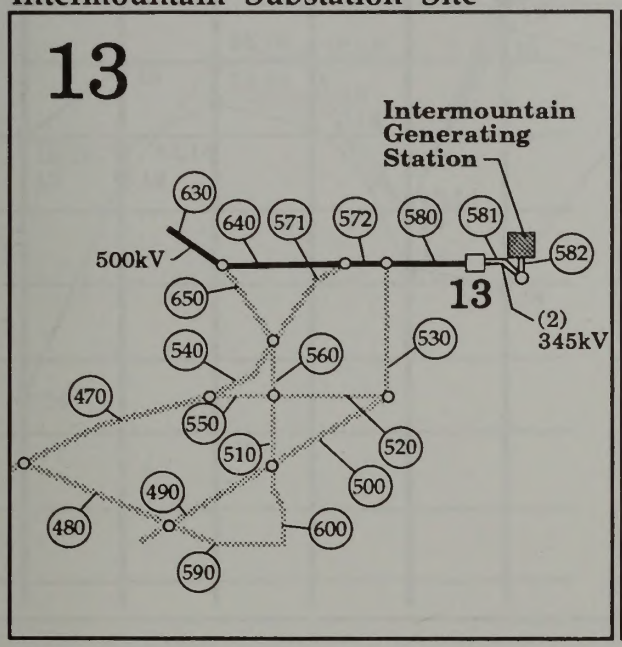
500kV TRANSMISSION LINE (miles)																	
Biology			Earth			Land Use			Cultural			Visual					
L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
–	3.3	–	–	3.5	–	–	3.5	–	–	6.5	–	–	3.3	–	–	
–	3.3	–	–	3.5	–	–	3.5	–	–	6.5	–	–	5.4	0.4	–	
–	2.9	–	–	3.5	–	–	3.5	–	–	4.9	–	–	–	–	–	
–	2.9	–	–	3.5	–	–	3.5	–	–	4.9	–	–	5.4	–	–	

Alternative Facility Site Evaluation Form

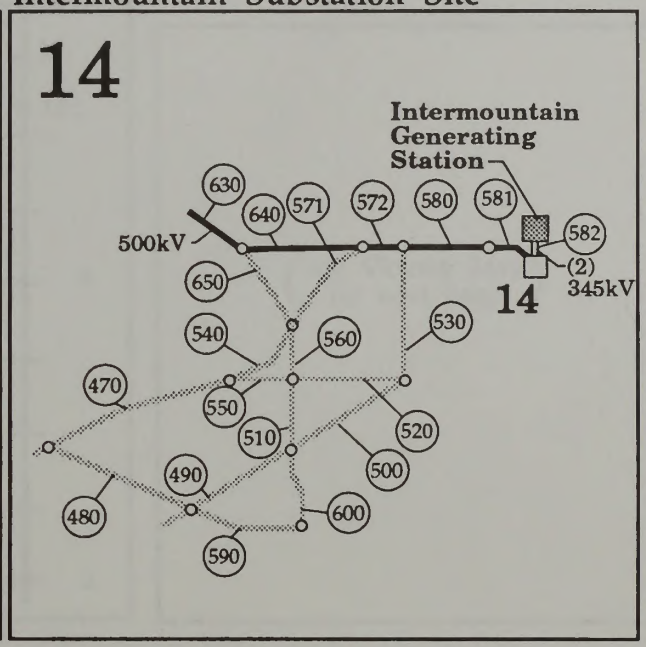


Vicinity Maps

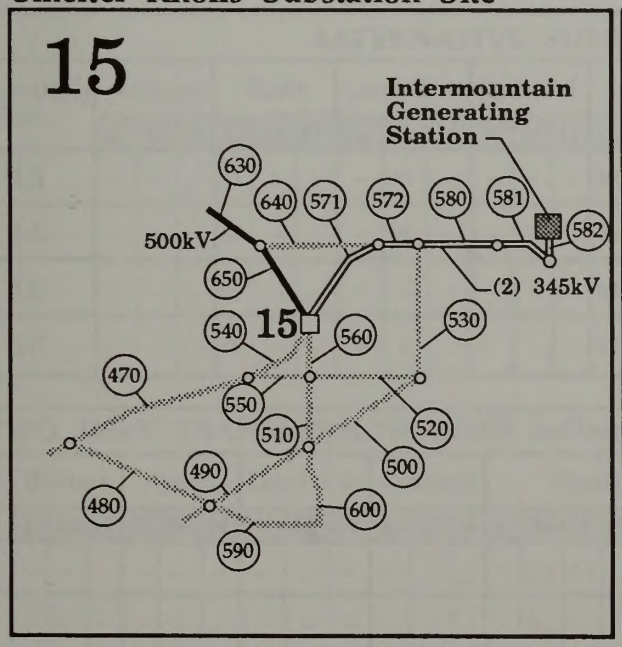
Intermountain Substation Site



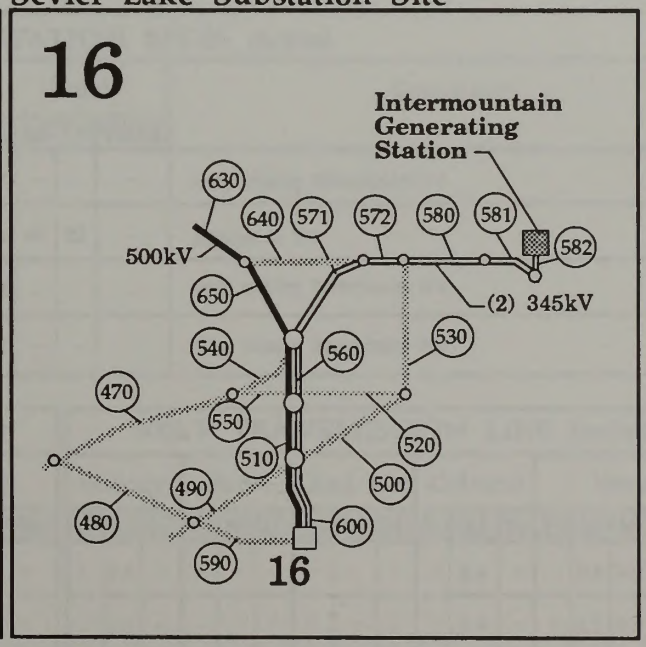
Intermountain Substation Site



Smelter Knolls Substation Site

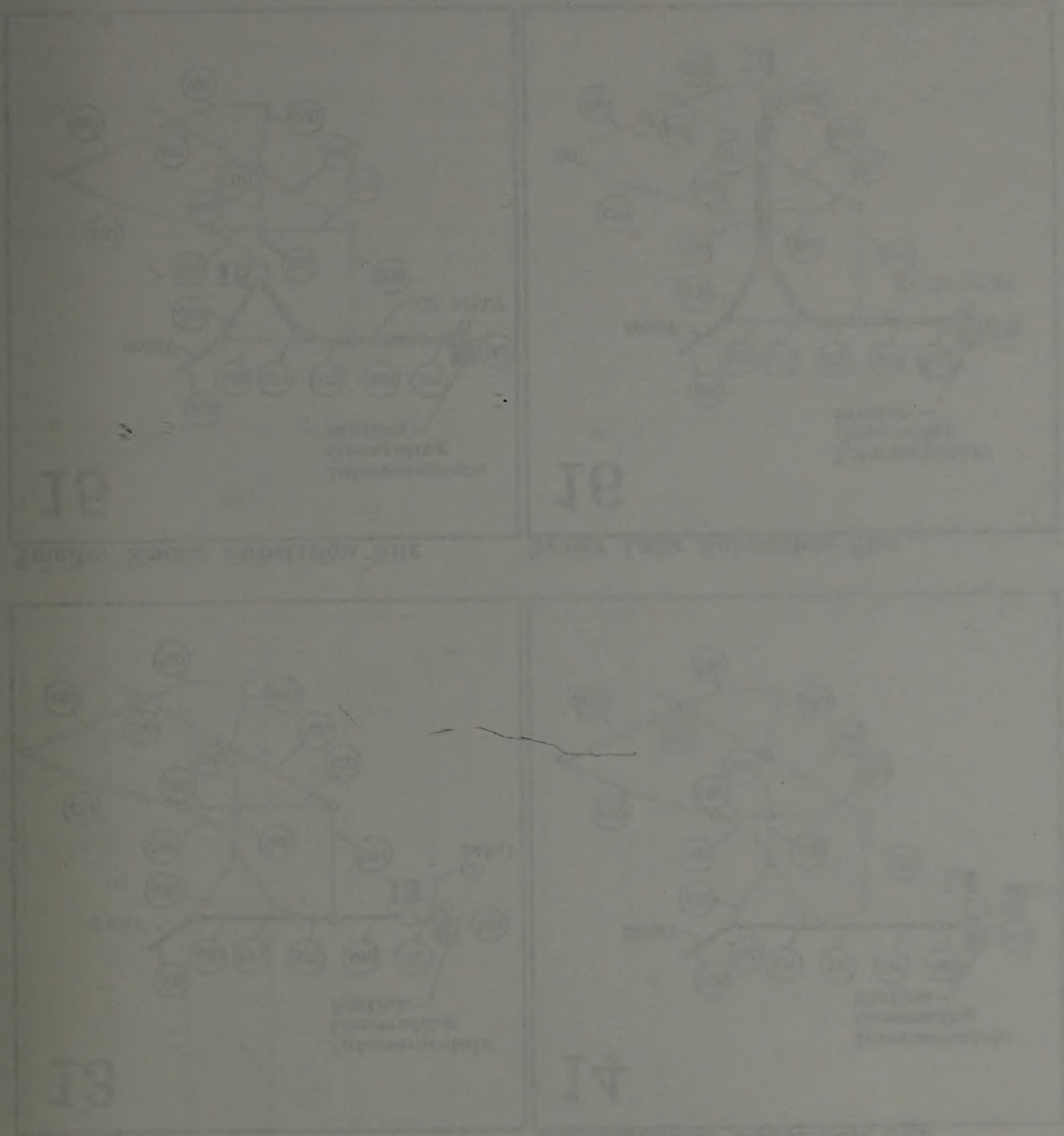


Sevier Lake Substation Site

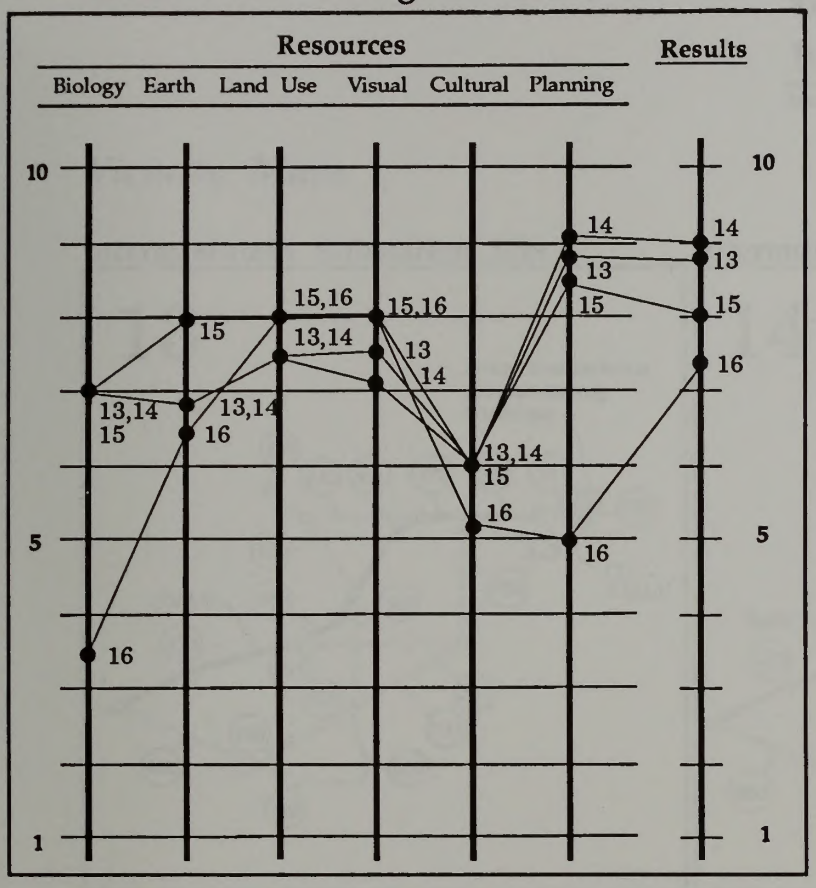


APPENDIX E

Alternative Facility Site Evaluation Form



Substation Site Ranking



Western Routing Approaches

Delta Substation Sites

(see Vicinity Map on next page)

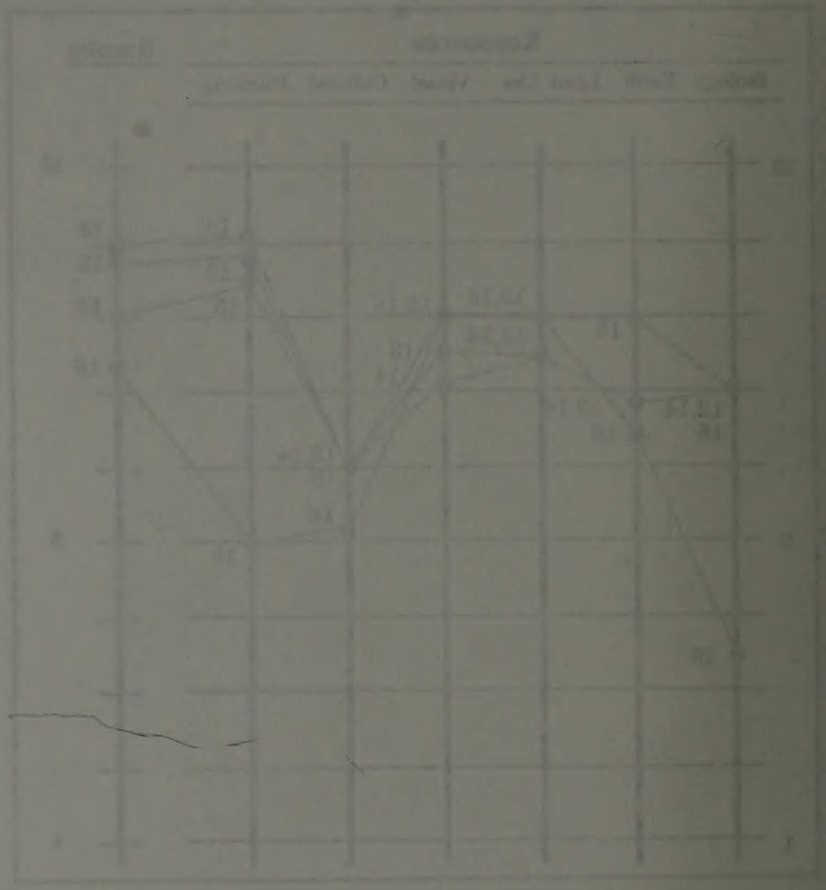
Impact Summary Table

ALTERNATIVE SUBSTATION SITES (acres)																	
Substation Site	Biology			Earth			Land Use			Cultural			Visual				Comments
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
13	–	–	–	88	–	–	–	44	–	–	–	–	89	–	–	–	Along existing transmission line
14	–	–	–	89	–	–	–	22	–	–	–	–	61	67	22	–	adjacent to IPP
15	–	–	–	89	–	–	–	–	–	–	–	–	89	–	–	–	Along existing transmission line
16	–	–	–	89	–	–	–	–	–	–	–	–	89	–	–	–	Along existing transmission line

TWO 345kV TRANSMISSION LINES (miles)																	
Site	Biology			Earth			Land Use			Cultural			Visual				
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
13	–	–	–	–	–	–	–	–	–	–	–	–	–	2.3	0.4	–	
14	–	–	–	–	–	–	–	–	–	–	–	–	–	0.2	–	–	
15	–	–	–	–	–	–	–	–	–	–	0.2	–	–	5.4	0.6	–	
16	–	–	–	–	–	–	–	–	–	–	0.2	–	–	5.4	–	–	

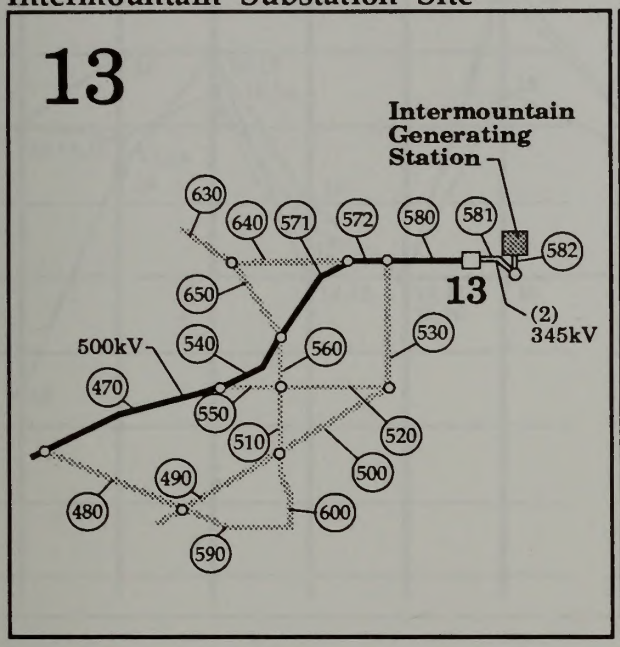
500kV TRANSMISSION LINE (miles)																	
Biology			Earth			Land Use			Cultural			Visual					
L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
–	0.3	–	–	–	–	–	–	–	–	9.4	–	–	6.6	0.6	–	
–	0.3	–	–	–	–	–	–	–	–	9.4	–	–	8.7	0.4	–	
–	0.3	–	–	–	–	–	–	–	–	9.2	–	–	3.3	0.6	–	
–	4.8	–	–	0.2	–	–	0.2	–	–	11.5	–	–	2.8	0.3	–	

Alternative Facility Site Evaluation Form

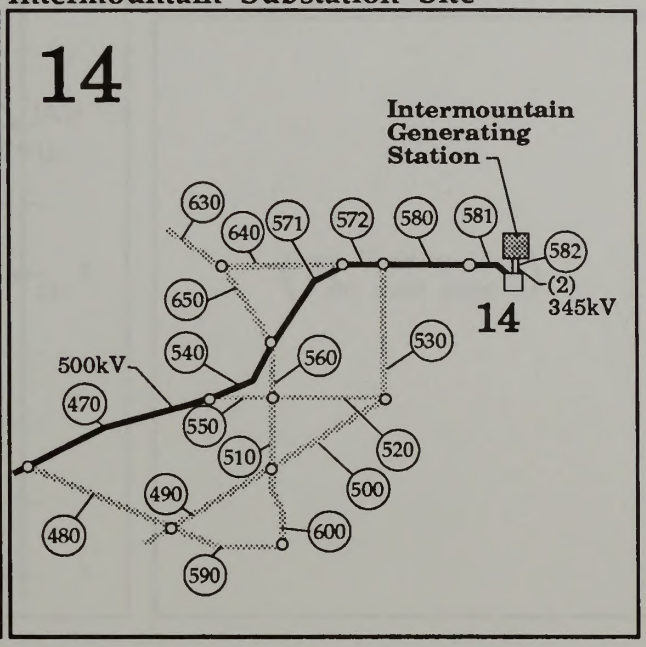


Vicinity Maps

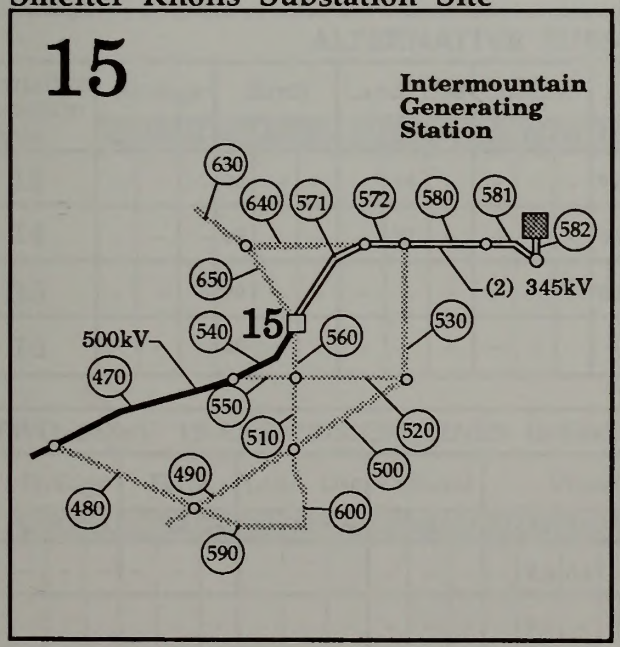
Intermountain Substation Site



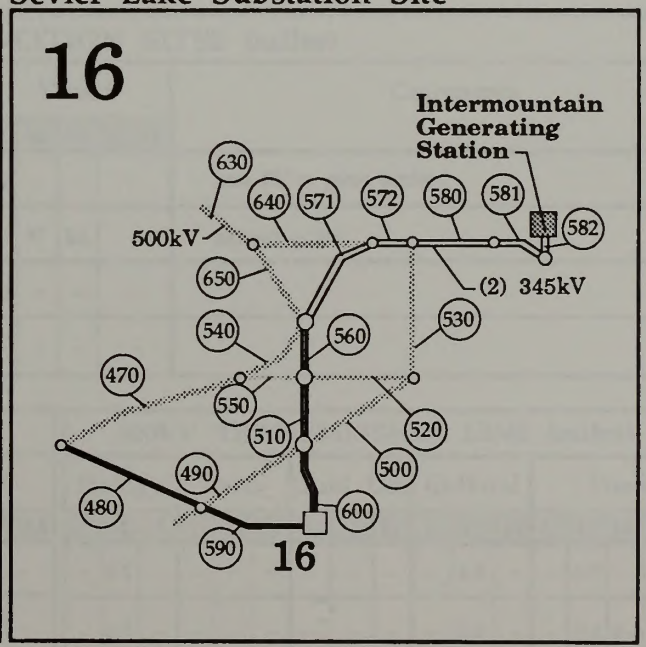
Intermountain Substation Site



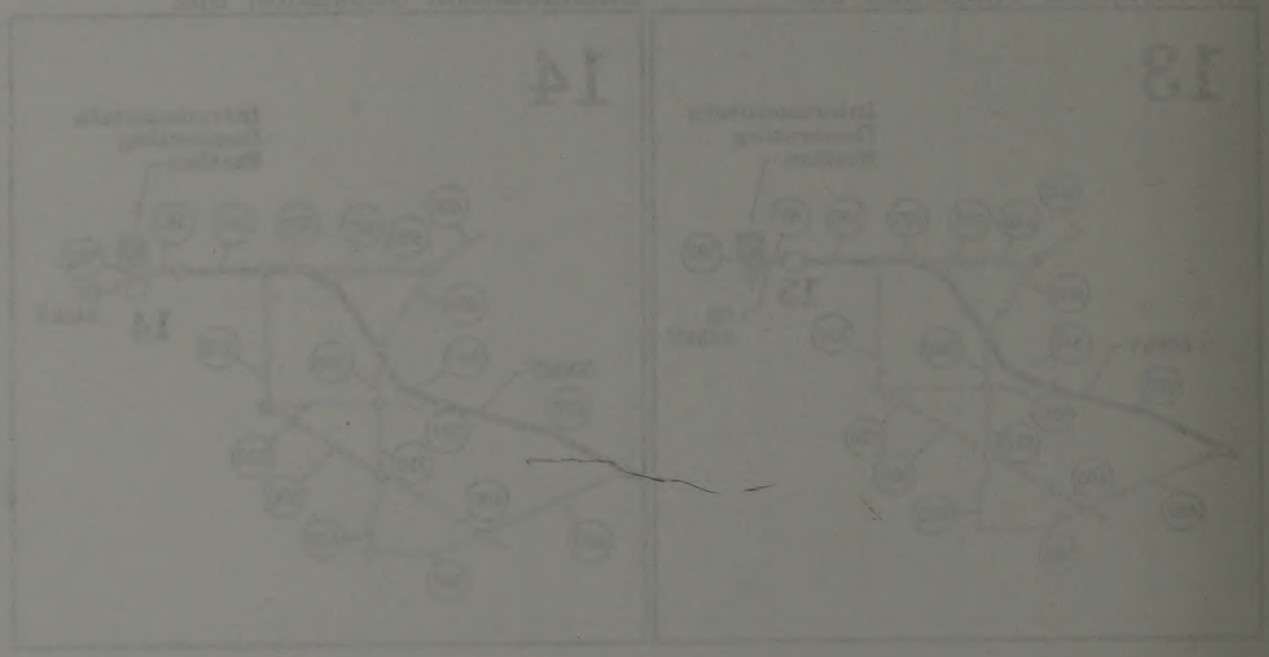
Smelter Knolls Substation Site

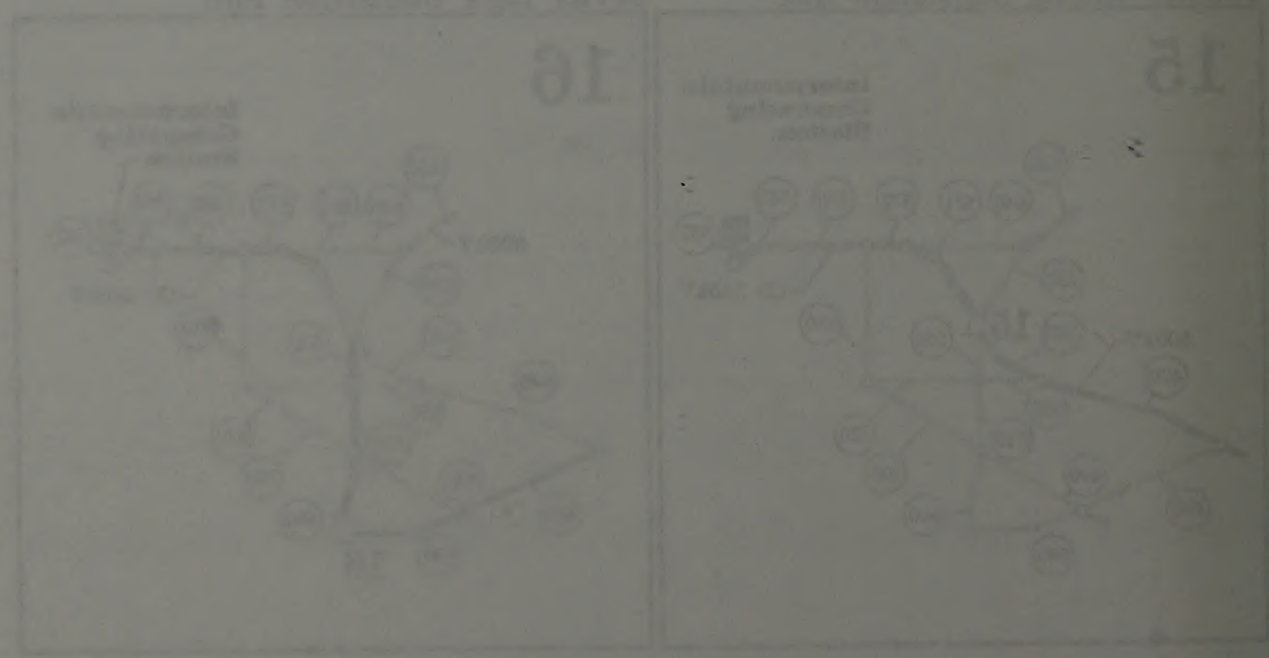


Sevier Lake Substation Site

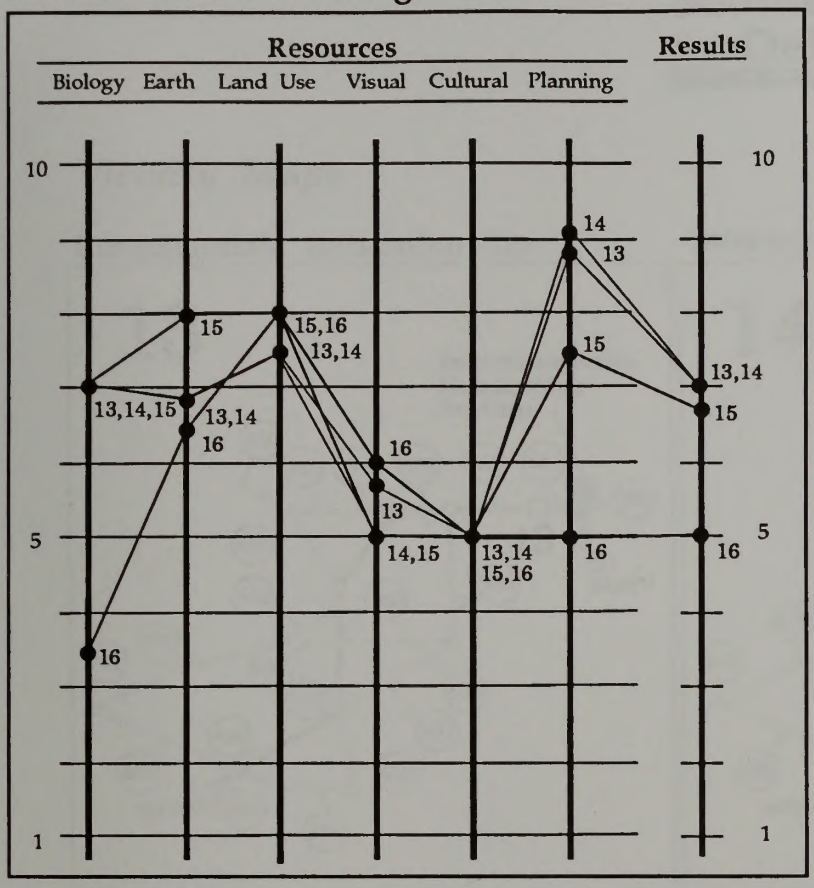


Alternative Facility Site Evaluation Form





Substation Site Ranking



Southern Routing Approaches

Delta Substation Sites

(see Vicinity Map on next page)

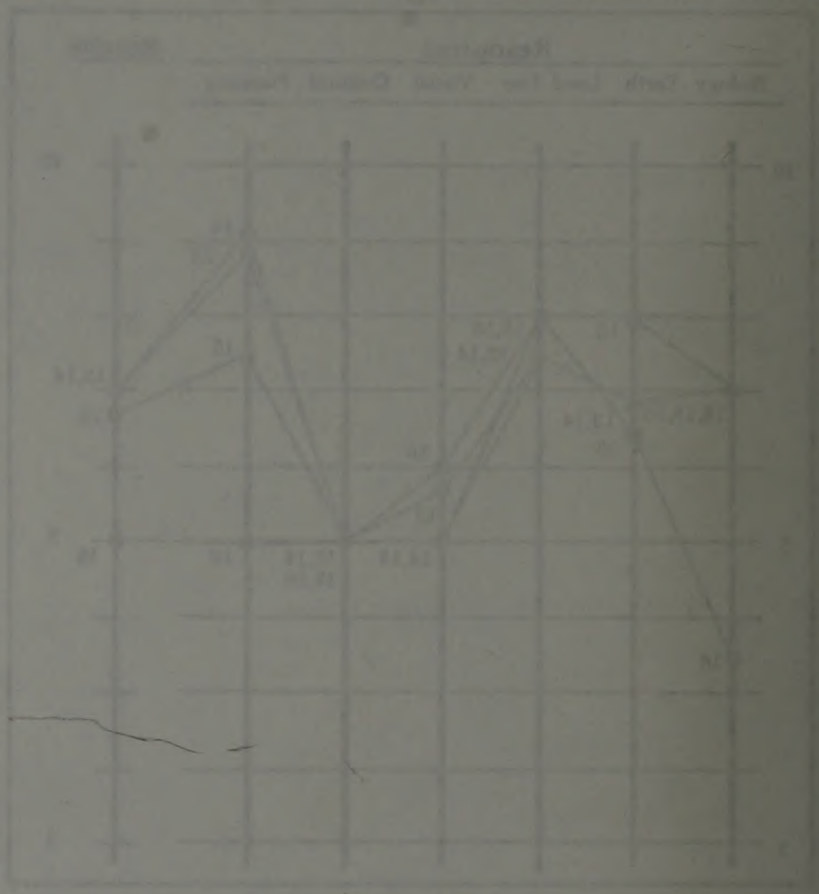
Impact Summary Table

ALTERNATIVE SUBSTATION SITES (miles)																	
Alternative Substation Site	Biology			Earth			Land Use			Cultural			Visual				Comments
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
13	–	–	–	88	–	–	–	44	–	–	–	–	89	–	–	–	near IPP on prime farmland
14	–	–	–	89	–	–	–	22	–	–	–	–	61	67	22	–	adjacent to IPP
15	–	–	–	89	–	–	–	–	–	–	–	–	89	–	–	–	
16	–	–	–	89	–	–	–	–	–	–	–	–	–	–	–	–	

TWO 345kV TRANSMISSION LINES (miles)																	
Site	Biology			Earth			Land Use			Cultural			Visual				
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
13	–	–	–	–	–	–	–	–	–	–	–	–	–	2.3	0.4	–	
14	–	–	–	–	–	–	–	–	–	–	–	–	–	0.2	–	–	
15	–	–	–	–	–	–	–	–	–	–	0.2	–	–	5.4	0.6	–	
16	–	–	–	–	–	–	–	–	–	–	0.2	–	–	5.4	–	–	

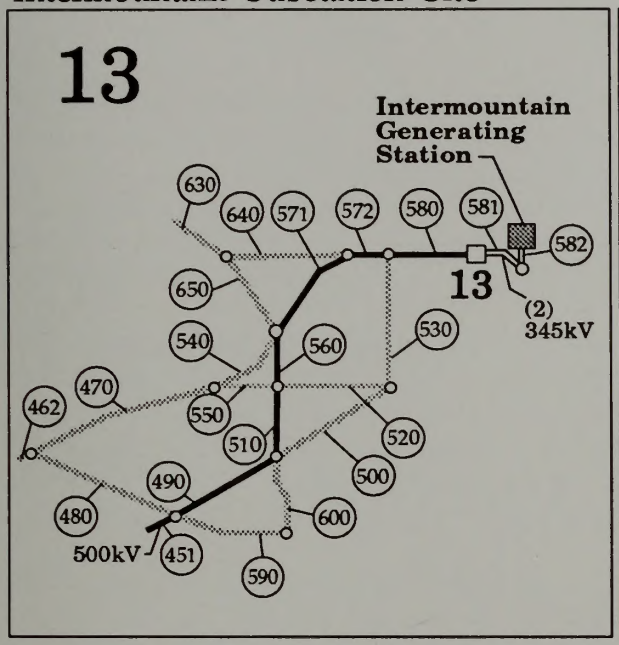
500kV TRANSMISSION LINE (miles)																	
Biology			Earth			Land Use			Cultural			Visual					
L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	VRM	
–	0.5	–	–	–	–	–	–	–	–	5.0	–	–	3.3	–	–	
–	0.5	–	–	–	–	–	–	–	–	5.0	–	–	5.4	0.4	–	
–	0.5	–	–	–	–	–	–	–	–	4.5	–	–	–	–	–	
–	3.9	–	–	–	–	–	–	–	–	3.9	–	–	0.7	–	–	

Alternative Facility Site Evaluation Form

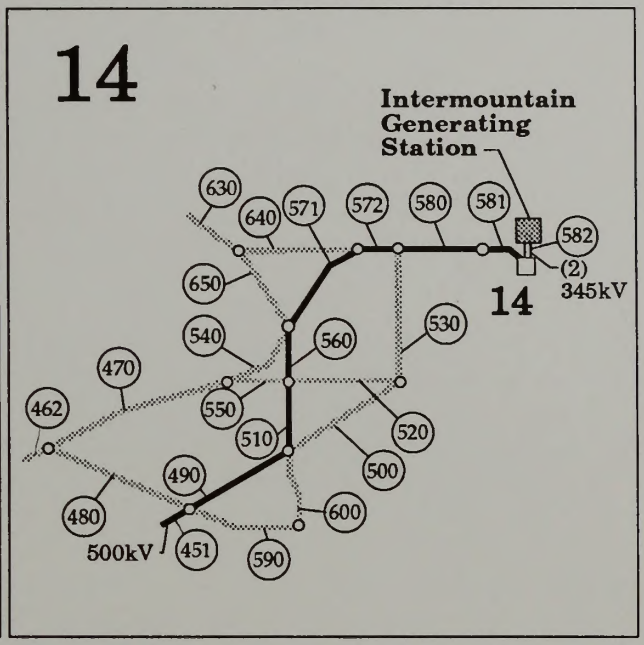


Vicinity Maps

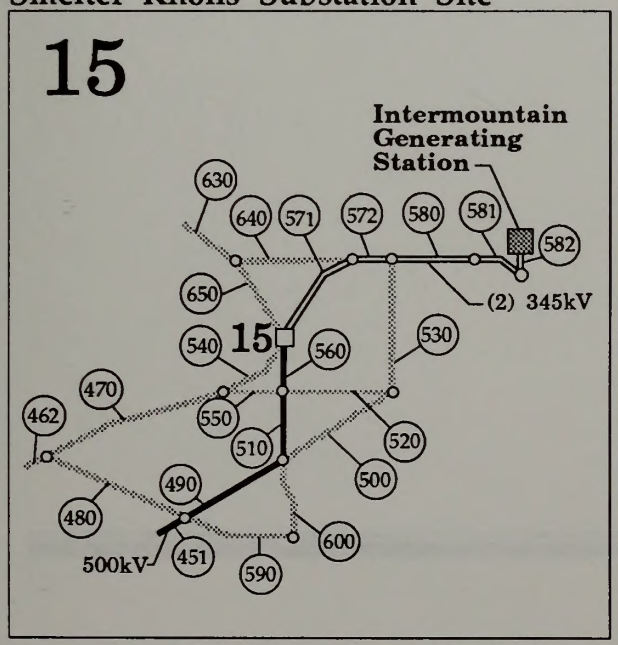
Intermountain Substation Site



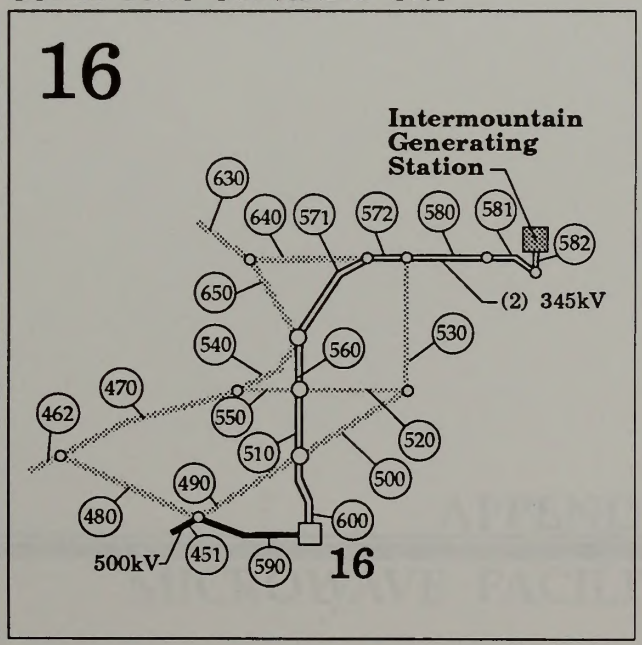
Intermountain Substation Site



Smelter Knolls Substation Site

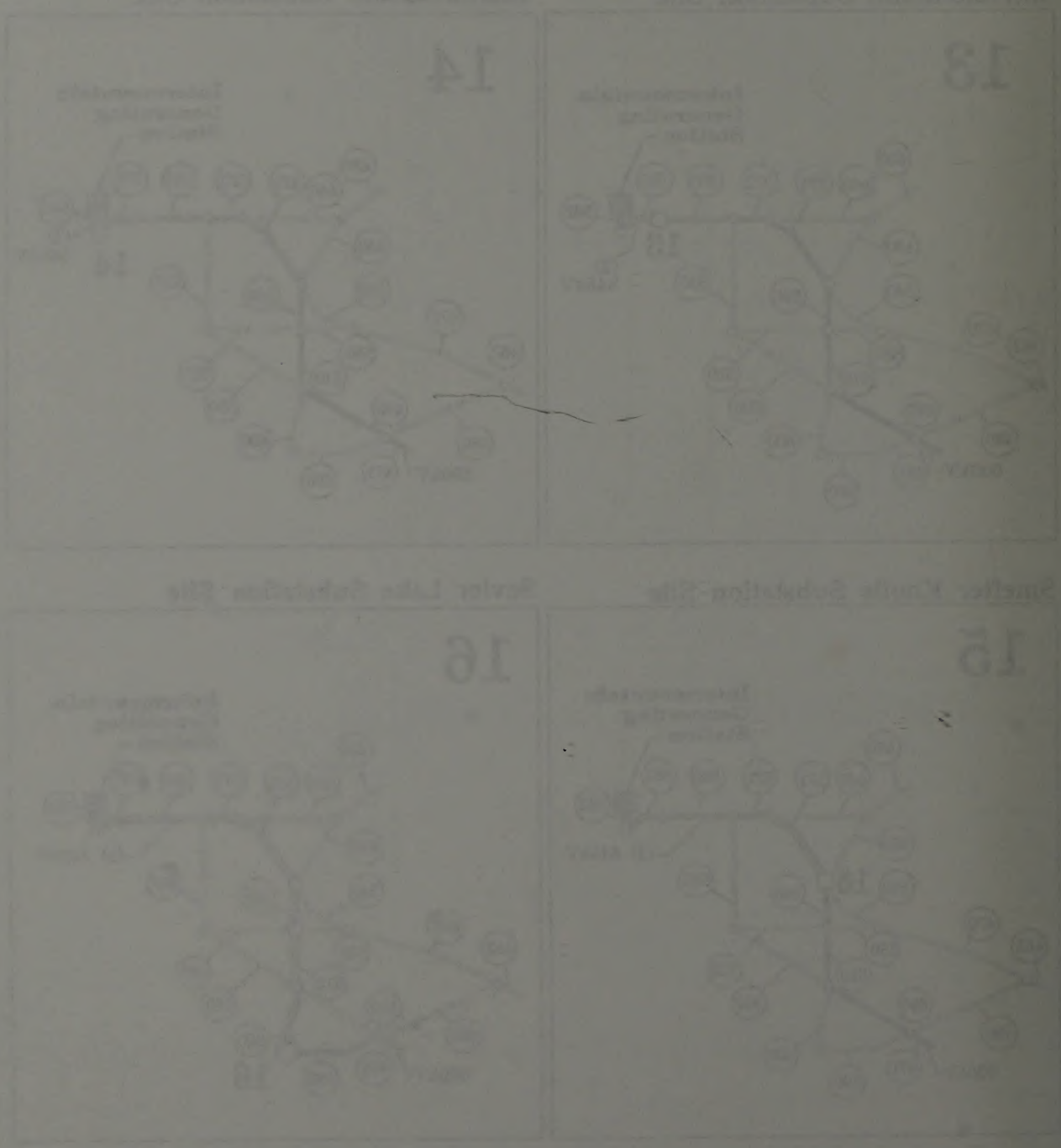


Sevier Lake Substation Site



APPENDIX E

Alternative Facility Site Evaluation Form



APPENDIX F
MICROWAVE FACILITIES

APPENDIX F
MICROWAVE FACILITIES

INTRODUCTION

In the operation of large transmission lines, highly reliable and extremely secure communication circuits are required for protective relaying. The SWIP transmission line would require the use of a microwave system between Midpoint Substation in Idaho and Dry Lake substation in Nevada. In addition to the protective relaying circuits, the microwave system would be used for voice communication, telemetering, and supervisory control and data acquisition (SCADA).

Maintenance of the proposed communication facilities consists of testing, repair, and replacement of the electronic equipment within the building at the communication site. Inspection and maintenance of the building, communication tower, and other equipment usually occurs in the fall and spring of each year. These facilities are unmanned and operate automatically. The buildings are locked and secured, and entry is restricted to appropriate utility personnel.

At the end of the proposed project's life, if the facilities are no longer needed for any existing or proposed projects, the microwave sites would be abandoned. Subsequently, the equipment would be dismantled and removed from the site.

The facilities are described in detail on page 2-15 and are illustrated in Figures F-1 and F-2.

FACILITY SITING PROCESS

Potential microwave sites were identified through a review of existing maps and by overflights conducted during the environmental studies for the Southwest Intertie Project. Maps of existing developed communication sites were provided by the district offices of the Bureau of Land Management. Sites with existing facilities and undeveloped sites were investigated for the Midpoint to Ely routes in the summer of 1989, and the Ely to Dry Lake routes in the summer of 1990. Because LADWP currently operates a microwave system between Ely and Delta for the Gondor-IPP 230kV transmission line, new microwave sites would not be needed for the Ely to Delta routes.

Initial siting investigations for microwave station sites were carried out by IPCo representatives. Microwave station sites were selected based on the following engineering and operational criteria:

- line of sight between sites (with a specified clearance)

- good access
  - all weather roads most desirable (maximum)
  - helicopter pad (minimum)
- available power source
- sites 35 to 40 miles between stations
- 1/4 acre of relatively flat ground

INVENTORY

Methods

Data collection at the alternative microwave sites began in the summer of 1989. Location of existing microwave sites, and potential sites for new development were identified during the facility siting process. Environmental studies were conducted as a joint effort between BLM, IPCo, and Dames & Moore representatives. Resource data were collected for each alternative microwave facility using the same methods as described for substation facilities (refer to Appendix E).

Results

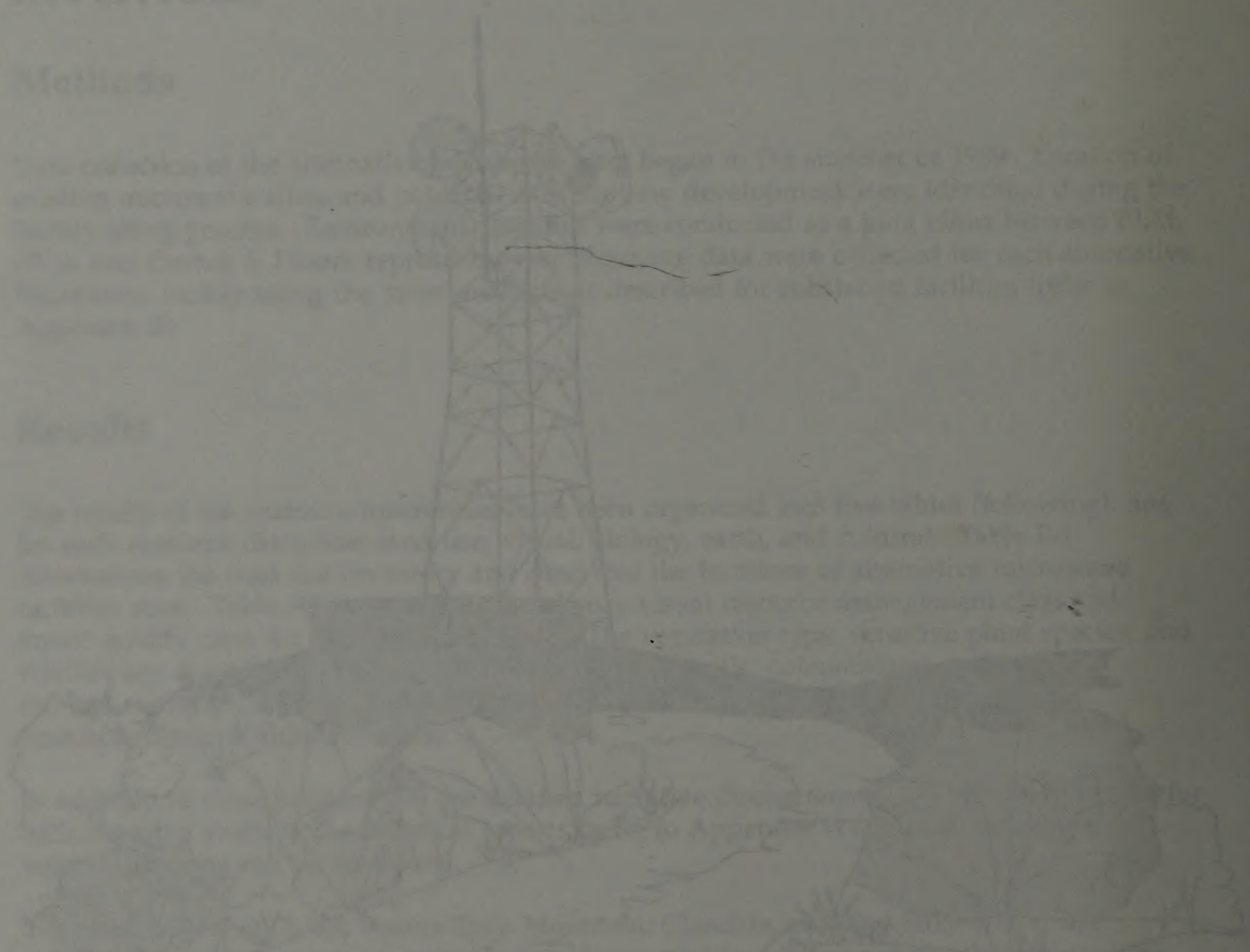
The results of the resource inventories have been organized into five tables (following), one for each resource discipline: land use, visual, biology, earth, and cultural. Table F-1 summarizes the land use inventory and describes the locations of alternative microwave facilities sites. Table F-2 summarizes the agency visual resource management class and scenic quality class for each alternative site. The vegetation type, sensitive plant species, and wildlife are described in Table F-3. The geology and soils, paleontology, and potential mineral resources are described in Table F-4. Table F-5 describes the known cultural resources for each alternative site.

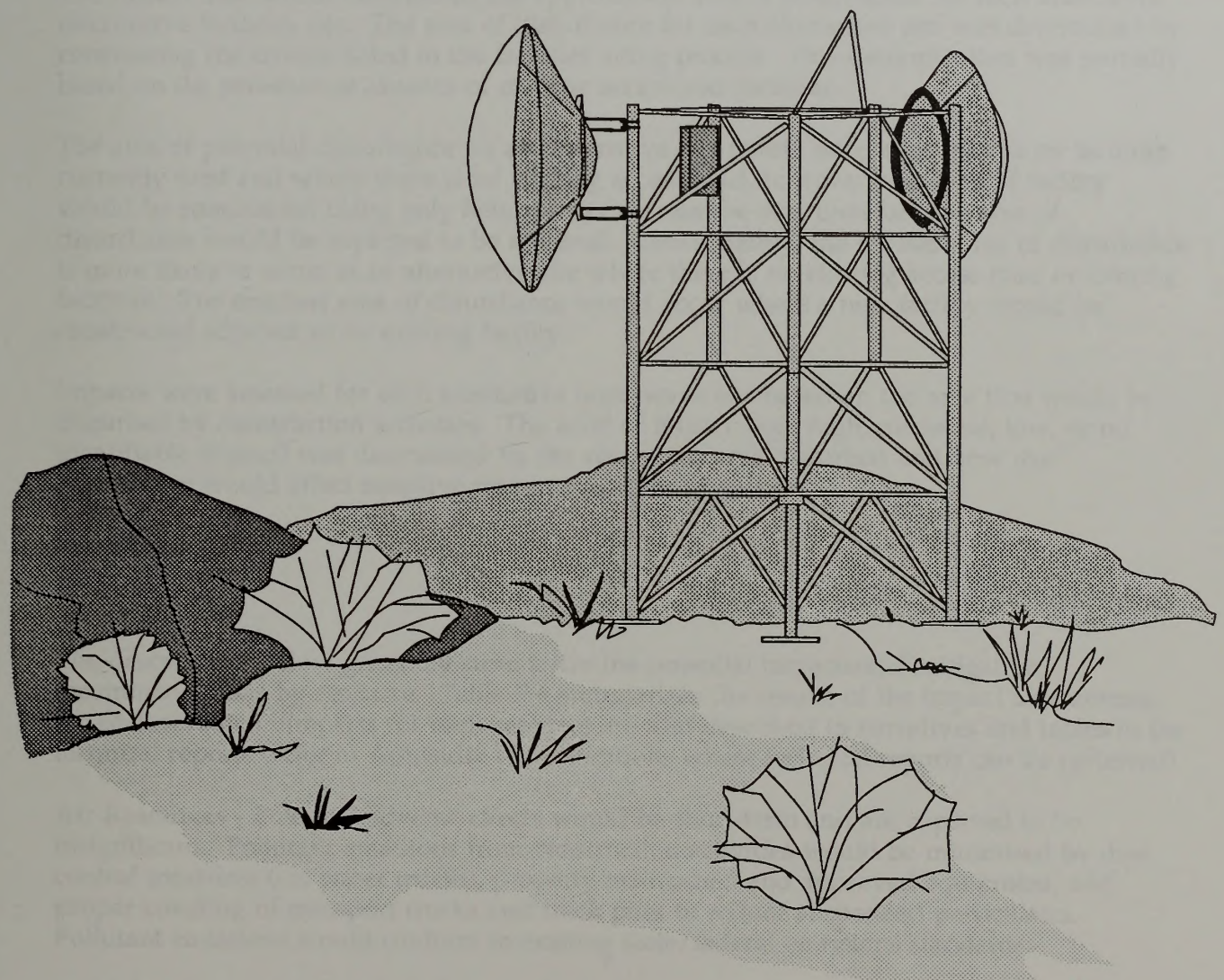
In addition to these tables, there are detailed narrative discussions of the inventory results for each resource study in the technical reports (refer to Appendix H for locations where technical reports can be reviewed).

The sites at Hansen Butte, Beaver Dam Mountain, Glendale, and Dry Lake would use existing facilities requiring no ground disturbing activities. Subsequently, these four sites were not included on Tables F-2, F-3, F-4, and F-5.

Typical Microwave Facility

Figure F-1





Typical Solar-powered Microwave Facility

Figure F-2

IMPACT ASSESSMENT/MITIGATION PLANNING

The purpose of the impact assessment was to determine the potential adverse effects of the construction and operation of a proposed microwave system facilities. Mitigation recommendations focus on methods to minimize the area of disturbance.

Methods

The impact assessment determined the approximate area of disturbance for each alternative microwave facilities site. The area of disturbance for each alternative site was determined by considering the criteria listed in the facilities siting process. This determination was partially based on the presence or absence of existing access and facilities.

The area of potential disturbance for an alternative site would be greatest where no facilities currently exist and where there is no existing access road, however, this type of facility would be constructed using only helicopters to access the site, therefore the area of disturbance would be expected to be minimal. Consequently, the greatest area of disturbance is more likely to occur at an alternative site where there is no existing access road or existing facilities. The smallest area of disturbance would occur where a new facility would be constructed adjacent to an existing facility.

Impacts were assessed for each alternative microwave site based on the area that would be disturbed by construction activities. The level of impact (e.g., high, moderate, low, or no identifiable impact) was determined by the size of the area disturbed and how that disturbance would effect sensitive resource features or values.

Results

The descriptions below generally summarize the potential impacts and mitigation recommendations by resource. Table F-6 summarizes the results of the impact assessments for each resource. Impacts for each resource are also described in narratives and tables in the technical reports (refer to Appendix H for locations where technical reports can be reviewed).

Air Resources - Potential adverse effects would be short-term and are expected to be insignificant. Pollutant emissions from construction activities would be minimized by dust control measures (i.e. water trucks), properly maintained and approved equipment, and proper covering of transport trucks and stock piles to reduce suspended particulates. Pollutant emissions would conform to existing state/federal emissions standards.

Earth Resource - Microwave sites are expected to have only minor impacts on earth resources because of their small area of disturbance. The small disturbance area would minimize potential impacts to paleontological resources. Mitigation measures (e.g. water bars

on access roads, revegetation on disturbed areas) is expected to reduce the potential for soil erosion and sedimentation during construction.

Three of the microwave facilities sites, Spruce Mountain, Squaw Peak, and Cave Mountain, would have low impacts to areas with hardrock minerals potential.

Biological Resource - Development at several of the alternative sites would result in moderate to high impacts to wildlife during construction activities or as a result of improved access. Generally, construction-related impacts can be avoided by restricting construction activities during high activity seasons or avoiding specific activities during sensitive seasons of a species' life-cycle (e.g., breeding season). Impacts resulting from improved access can be reduced by providing gates and/or closing unneeded access roads. Pre-construction field surveys would verify potential areas where threatened and/or endangered species may be affected. Springs and watering holes would be avoided.

Land Use - Potential impacts to existing, planned, and designated land uses were largely avoided during facilities siting. Use of existing access or the construction of new access roads may require rights-of-way. Most existing roads would be adequate with only minor upgrades. Potential impacts to range uses would consist of the long-term loss of less than one-quarter acre of production per site.

Visual Resources - As microwave facilities are typically located on high points, visual impacts can be expected. However, because most proposed microwave sites are not visible from sensitive viewpoints or are located at sites with existing facilities, visual effects are expected to be minimal. Several residences would be able to view the Hanson Butte site near Twin Falls, Idaho and Spruce Mountain adjacent to Ely, Nevada, from a distance of less than one mile. However, because both of these sites have existing facilities, impacts are expected to be low.

Cultural Resources - Cultural resources are only expected to be encountered in those areas where microwave facilities would be located at proposed substations (also refer to Appendix E, Substation and Series Compensation Stations). Typically, the location of microwave facilities on high points tends to avoid potential conflicts with cultural sites.

There is a greater likelihood for the occurrence of cultural sites in the valleys at the proposed Goshute Valley and Dry Lake substation sites. Potential impacts at these two sites would include moderate impacts associated with the Old Spanish Trail/Mormon Trail, an antelope trap, and several prehistoric and historic sites.

Initially, 16 sites were identified as being possible candidates for the SWIP microwave system. Of these 16 sites, 10 are developed (1 of which require only the addition of a dish) and 6 are undeveloped.

ALTERNATIVE COMMUNICATION PATHS

Two alternative microwave communication paths have been identified. These alternative paths depend on where the substation near Ely is sited, the North Steptoe site or Robinson Summit site.

The communications path from Midpoint Substation to the Robinson Summit substation site to the Dry Lake substation site would require the development of new microwave facilities at ten of the alternative microwave sites studied. Of these ten sites, eight sites would be developed at locations adjacent to existing electronic facilities and two of the sites would require new construction on previously undeveloped sites. The specific microwave sites required for each of the paths are listed below, from north to south:

Robinson Summit	**North Steptoe**
Path 1	Path 2
Hansen Butte	Hansen Butte
Cottonwood	Cottonwood
Ellen D	Ellen D
Rocky Point	Six-Mile
Proctor	Spruce Mountain
Bald Peak	Long Valley
Raiff	Copper
Squaw Peak	Cave Mountain
Cave Mountain	Mount Wilson
Mount Wilson	Highland Peak
Highland Peak	

The other path would link Midpoint Substation to the North Steptoe substation site to the Dry Lake substation site and would require the development of new microwave facilities at eleven of the alternative microwave sites studied. Of these eleven sites, eight sites would be developed adjacent to similar existing facilities. Three of the sites would require new development.

Several of these existing facilities sites would be used to complete both paths 1 and 2, which include Hansen Butte Cottonwood, Ellen D, Rocky Point, Cave Mountain, Mount Wilson, and Highland Peak.

TABLE F-1

Microwave Facilities Sites
Land Use Inventory

SITE	STATE	LOCATION	LAND USE	JURISDICTION	ACCESS	POWER
Hansen Butte	ID	approx. 4.5 to 5 mi. S.E. of Hansen.	existing site	private access to site	public road	yes
Cottonwood	ID	approx. 10.5 to 11 mi. N.E. of Progress.	range and wildlife habitat	Sawtooth Nat'l Forest	*public road access approx. .5 mi. E. & W. of site	**no
Bear	ID	approx. 24 to 25 mi. W. of Magic Hot Springs	range and wildlife habitat	private	* no access	**no
Ellen D	NV	approx. 5.5 to 6 mi. N.W. of Contact.	developed site	BLM	private road access	**no
Rocky Point	NV	approx. 8 to 10 mi N.W. of Oasis. Pequop Mtns.	developed site	private access to site	private road	yes

* Site would need to be accessed by helicopter

** Site would need to be powered by solar source

[1] Will be constructed with Dry Lake Substation

Table F-1 (Continued)
Microwave Facilities Sites Land Use Inventory

SITE	STATE	LOCATION	LAND USE	JURISDICTION	ACCESS	POWER
Six-Mile	NV	approx. 5.5 to 6 mi. E. of Oasis. Pequop Mtns.	range and wildlife habitat	BLM	public road access .25 mi. N of site	no
Proctor	NV	approx. 5 mi. E. of Shafter. Toano Mtn. Range	range and wildlife habitat	private	*private road access approx. .5 mi. E. of site	**no
Spruce Mtn.	NV	approx. 18 to 20 mi. N. of Currie	developed site	BLM	road access to site	**no
Bald Peak	NV	approx. 8 to 10 mi. N.E. of Currie. Dolley Varden Mtns.	developed site	BLM	road access to site	yes
Long Valley	NV	approx. 15 to 20 mi. N.W. of Cherry Cr.	range and wildlife habitat	BLM	*no road access	**no

* Site would need to be accessed by helicopter

** Site would need to be powered by solar source

[1] Will be constructed with Dry Lake Substation

Table F-1 (Continued)
Microwave Facilities Sites Land Use Inventory

SITE	STATE	LOCATION	LAND USE	JURISDICTION	ACCESS	POWER
Copper	NV	approx. 4 to 5 mi. N.W. of Kimberly. Egan Range	developed site	BLM	public road access to site	yes
Raiff	NV	approx. 8 to 10 mi. N.W. of Warm Sp. Egan Range Log Canyon	range and wildlife habitat	BLM	*public road access 1 mi. E. of site	**no
Squaw Peak	NV	approx. 1 mi. N.W. of Ely	developed site	BLM	public road access to site	yes
Cave Mountain	NV	approx. 9 to 10 mi. N. of Majors Place	developed site	Forest Service	Public road to access site	yes
Mt. Wilson	NV	approx. 20 to 22 mi. N. of Pioche	developed site	private	public road access to site	yes
Highland Peak	NV	approx. 8 to 10 mi. S.W. of Pioche Highland Range	developed site	BLM	public road access to site	yes

* Site would need to be accessed by helicopter

** Site would need to be powered by solar source

[1] Will be constructed with Dry Lake Substation

TABLE F-2

Microwave Facilities Sites
Visual Inventory

SITE NAME	VISUAL MANAGEMENT	SCENIC QUALITY
Idaho		
Hansen Butte	Class IV	Class C
Cottonwood	Modification*	Class B
Bear	Class III	Class B
Nevada		
Ellen D	Class III	Class B
Rocky Point	Class III	Class B
Six-mile	Class IV	Class B
Proctor	Class II	Class B
Spruce Mtn.	Class III	Class B
Bald Peak	Class III	Class B
Long Valley	Class IV	Class B
Copper	Class III/IV	Class B
Raiff	Class IV	Class B
Squaw Peak	Class III	Class B
Cave Mountain	Modification*	Class B
Mount Wilson	Class II	Class A
Highland Peak	Class II	Class A

* Forest Service Visual Quality Objective (VQO)

TABLE F-3

Microwave Facilities Sites
Biological Resources Inventory

SITE NAME	VEGETATION	WILDLIFE
Idaho		
Hansen Butte	grassland w/bare soil,	none known or sparsely vegetated areas
Cottonwood	mountain shrub/grasses	burrowing owls within vegetation two miles of site
Bear	mountain shrub/grasses	springs present - no agency data
Nevada		
Ellen D	sage scrub & mountain shrub vegetation deer winter & crucial pronghorn summer habitats	Rocky Mtn Bighorn sheep, crucial mule
Rocky Point	sage scrub w/mountain shrub vegetation and areas of bare or sparsely vegetated ground	sage grouse, crucial pronghorn summer habitat, mule deer yearlong habitat
Six-Mile	sage scrub w/mountain shrub/grass habitat	mule deer yearlong habitat
Proctor	sage scrub habitat	yearlong pronghorn & mule deer habitat; ferruginous hawk nesting in vicinity

TABLE F-3

Microwave Facilities Sites
Biological Resources Inventory

SITE NAME	VEGETATION	WILDLIFE
Idaho		
Elmore Butte	grassland w/bare soil	none known or sparsely vegetated areas
Cottonwood	mountain shrub/grass	burrowing owls within vegetation two miles of site
Deer	mountain shrub/grass	springs present - no apparent use
Nevada		
Elko D	sage scrub & mountain shrub vegetation. Deer winter & crucial pronghorn summer habitats	Rocky Mtn Bighorn sheep crucial range
Rock Spgs	sage scrub w/mountain shrub vegetation and areas of bare or sparsely vegetated ground	sage grouse, crucial pronghorn & mountain lion habitat, mule deer feeding habitat
Silvies	sage scrub w/mountain shrub/grass habitat	mule deer feeding habitat
Pecos	sage scrub habitat	feeding pronghorn & mule deer habitat, ferruginous hawk nesting in vicinity

Table F-3 (continued)
Microwave Facilities Sites Biological Resources Inventory

SITE NAME	VEGETATION	WILDLIFE
Spruce Mtn.	mix of mtn. shrub/grass vegetation	bald eagle roost 1.5 miles S.W. of site, mule deer summer habitat, & adjacent crucial winter habitat
Bald Peak	sage scrub, grassland & mtn. shrub/grassland vegetation	yearlong mule deer and pronghorn habitat
Long Valley	mtn. shrub/grass vegetation	crucial water source; habitat for mule deer, sage grouse & wild horses
Copper	sage scrub & grass vegetation	ferruginous hawk nesting habitat in vicinity
Raiff	sage scrub w/mountain shrub/grass & grassland habitat	crucial water source; mule deer, sage grouse and antelope within vicinity
Squaw Peak	sage scrub w/ sparsely vegetated ground	long-billed curlew, sandhill crane and ferruginous hawk habitat in the vicinity
Cave Mountain	grassland & sage scrub	bald eagle winter range, elk/deer summer habitat
Mount Wilson	mnt shrub/grasses with some natural bare soil	Key summer range for mule deer/elk, sage and blue grouse habitat.
Highland Peak	sensitive plant habitat- Jamesia tetrapetala (3c)	mule deer

TABLE F-4

Microwave Facilities Sites
Earth Resources Inventory

SITE	STATE	GEOLOGY	PALEONTOLOGY	MINERALS	SOILS
Hansen Butte	ID	Gray olivine basalt (Qbh)	Low to moderate sensitivity	No known mineral resources	Deep, silt loam soils
Cottonwood	ID	Idavada volcanics, rhyolite and latite, lava, flows and welded tuff (TIV)	Unevaluated for vertebrate fossils; moderate sensitivity for invertebrate fossils	No known mineral resources	Soils formed from welded tuff, andesite, and basalt
Bear	ID	Idavada Volcanics, rhyolite and latite, lava, flows and welded tuff (Tiv)	Unevaluated for vertebrate fossils; moderate sensitivity for invertebrate fossils	No known mineral resources	Soils formed from basalt, welded tuff, and intermediate igneous rocks
Ellen D	NV	Limestone, dolomite, shale (PMc)	Moderate sensitivity	Low mineral potential	Very deep, well-drained soils
Rocky Point	NV	Limestone, sparse dolomite, siltstone, sandstone (Ppc)	Moderate sensitivity, Paleozoic fossils possible	Low mineral potential	Shallow to moderately deep, well-drained soils
Six Mile	NV	Shale, siltstone, sandstone, chert-pebble conglomerate, limestone (Mds)	Low sensitivity, Paleozoic fossils possible	Low mineral potential	Shallow to moderately deep, well-drained soils
Proctor	NV	Limestone, sparse dolomite, siltstone, sandstone (Ppc)	Moderate sensitivity, Paleozoic fossils possible	Low mineral potential	Shallow to moderately deep, well-drained soils
Spruce Mtn.	NV	Dolomite, limestone, minor amounts of sandstone and quartzite (Dc)	Low sensitivity Paleozoic fossils possible;	A mine within 0.5 miles; moderate mineral potential	Shallow to moderately deep, well-drained soils

Table F-4 (Continued)
Microwave Facilities Sites Earth Resources Inventory

SITE	STATE	GEOLOGY	PALEONTOLOGY	MINERALS	SOILS
Bald Peak	NV	Siltstone, sandstone, limestone and dolomite (commonly silty or sandy), and gypsum (Psc)	Moderate sensitivity, Paleozoic fossils possible	Mine within 0.5 miles; moderate mineral potential	Shallow to moderately deep, well-drained soils
Long Valley	NV	Andesite and related rocks of intermediate composition, flows and breccias (Ta1)	Low sensitivity	Low mineral potential	Well-drained, stony, carbonatic soils
Copper	NV	Siltstone, sandstone, limestone and dolomite (commonly silty or sandy), and gypsum (Psc)	Moderate sensitivity, Paleozoic fossils possible	Low mineral potential	Well-drained, stony, carbonatic soils
Raiff	NV	Limestone, dolomite, shale, siltstone (Cc)	Moderate sensitivity, Paleozoic fossils very possible	Low mineral potential	Well-drained, stony, carbonatic soils
Squaw Peak	NV	Dolomite, limestone, minor amounts sandstone, quartzite (Dc)	Low sensitivity, Paleozoic fossils possible	Mines near area, moderate mineral potential	Well-drained, stony, carbonatic soils
Cave Mountain	NV	Quartzite and shales, lower part of Cambrian (Cl)	Paleozoic fossils unlikely; low sensitivity	No known mineral resources, gold and tungsten mines approx. 1 mile southwest of site	Calcic, well drained, loamy-skeletal, stony, carbonic soils
Mount Wilson	NV	Tertiary tuffs and tuffaceous sediments (Tvt)	Paleozoic fossils unlikely; low sensitivity	No known mineral resource	Rockland, and shallow, well-drained, moderately steep to steep soils
Highland Peak	NV	Highland Peak Formation - limestone and dolomite (Chp)	Paleozoic fossils including trilobites likely	No known mineral resource; site located at southern end of Highland Mining District - hardrock minerals	Rockland and shallow, well-drained moderately steep to steep soils

TABLE F-5

Microwave Facilities Sites
Cultural Resources Inventory

SITE NAME	INVENTORY	SENSITIVITY/IMPACT
Idaho		
Hansen Butte	no cultural sites	no impacts
Cottonwood	no cultural sites	no impacts
Bear	no cultural sites	no impacts
Nevada		
Ellen D	no cultural sites	no impacts
Rocky Point	no cultural sites	no impacts
Six-mile	no cultural sites	no impacts
Proctor	no cultural sites	no impacts
Spruce Mtn.	no cultural sites	no impacts
Bald Peak	no cultural sites	no impacts
Long Valley	no cultural sites	no impacts
Copper	no cultural sites	no impacts
Raiff	no cultural sites	no impacts
Squaw Peak	no cultural sites	no impacts
Cave Mountain	no cultural sites	no impacts
Mount Wilson	no cultural sites	no impacts
Highland Peak	no cultural sites	no impacts

TABLE F-6

Impact Summary for Alternative Microwave Facilities Sites

	BIOLOGY	EARTH	LAND USE	CULTURAL	VISUAL
HANSEN BUTTE	no impacts	no identifiable impacts	facility near Chevron & Northwest Oil Pipeline	low impact	low impacts
COTTON WOOD	low impact to burrowing owl habitat	no identifiable impacts	Approx. 0.5 miles of new roads & approx. 3/4 acre range land removed from production	low impact	low impacts
BEAR	Potential impacts to springs & wildlife water source	no identifiable impacts	1/4 acre range removed from production	low impact	low impacts
ELLEN D	Mod/High impacts to Rocky Mtn. sheep & mule deer habitat	no identifiable impacts	existing electronic site, no impact	no identifiable impacts	no identifiable impacts
ROCKY POINT	moderate impacts to sage grouse & pronghorn antelope habitat	no identifiable impacts	existing electronic site, no impact	no identifiable impacts	no identifiable impacts
SIX MILE	mod impact to mule deer	no identifiable impacts	1/4 acre range removed from production	low impact	low impacts
PROCTOR	High impact to ferr. hawk if nest is active. Mod impact to big game area	no identifiable impacts	1/4 acre range removed from production	low impact	low impacts

Table F-6 (Continued)
Impact Summary for Alternative Microwave Facilities Sites

	BIOLOGY	EARTH	LAND USE	CULTURAL	VISUAL
SPRUCE MTN.	mod/high impact into crucial mule deer hab. & potential disturbance of of bald eagle winter roost	low impacts to hardrock minerals	existing electronic site, no impact	no identifiable impacts	no identifiable impacts
BALD PEAK	mod/high impact to big game	no identifiable impacts	existing electronic site, no impact	no identifiable impacts	no identifiable impacts
LONG VALLEY	mod/high spring habitat altered/degraded	no identifiable impacts	1/4 acre range removed from production	low impact	low impacts
COPPER	low/mod impact to ferr. hawk nest if active in site	no identifiable impacts	existing electronic site, no impact	no identifiable impacts	no identifiable impacts
RAIFF	mod/high impact to crucial watering area, visited by wildlife & wild horses	no identifiable impacts	1/4 acre range removed from production	low impact	low impacts
SQUAW PEAK	Mod/high spring habitat through alteration & degradation	low impact to minerals	1/4 acre range removed from production	low impact	low impacts
CAVE MOUNTAIN	low impacts to bald eagle & elk winter habitat	low impact to hardrock minerals	existing electronic site, no impact	no identifiable impacts	no identifiable impacts
MOUNT WILSON	no data	no identifiable impacts	existing electronic site, no impact	no identifiable impacts	no identifiable impacts
HIGHLAND PEAK	low impacts to mule deer	no identifiable impacts	existing electronic site, no impact	no identifiable impacts	low impacts

APPENDIX G

LIST OF AGENCIES, ORGANIZATIONS, AND INDIVIDUALS RECEIVING THE DEIS/DPA

APPENDIX G
LIST OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS RECEIVING DRAFT EIS/PA

A listing has been developed of those individuals, groups, organizations, and political representatives to whom all public documents will be sent. This includes, but is not limited to, the following:

Federal Agencies

Environmental Protection Agency
- Office of Federal Activities
- Chief Environmental Policy Branch, Region-8 Office
- Region 10, Environmental Evaluation Branch, Seattle, WA
- Environmental Review Coord., Div. E-3, Region 9, San Francisco, CA
- Office of Environmental Affairs

Federal Highway Administration, Washington, DC and Portland, OR
Office of Public Affairs
Natural Resources Library
Department of the Interior
- Bureau of Land Management
  - Idaho State Office
    - Boise District
      - Jarbidge Resource Area
      - Owyhee Resource Area
    - Burley District
      - Snake River Resource Area
    - Shoshone District
      - Bennett Hills Resource Area
  - Nevada State Office
    - Elko District
    - Ely District
    - Las Vegas District
      - Caliente Resource Area
      - Stateline Resource Area
  - Utah State Office
    - Richfield District
      - House Range Resource Area
      - Warm Springs Resource Area
    - Salt Lake District
  - Denver Service Center
  - Director, Washington, DC

Barstow Resource Area
Bureau of Mines
Branch of Mineral Assessment
Western Field Operation Center
Intermountain Field Operation Center
Director/State Geologist, Reno, NV
Bureau of Reclamation
Division of Power, Washington, DC
Burley, Idaho
Regional Director, Pacific Northwest Region
Regional Director, Lower Colorado Region
Regional Director, Mid-Pacific Region
Regional Environmental Officer, Upper Colorado Region, Salt Lake City, UT
Division of Engineering & Technical Services, Boulder City, NV
Denver Federal Center
Fish and Wildlife Service
Idaho Field Office
Reno
Office of Regional Director, Denver, CO
Chief, Division of Environmental Coordination, Washington, DC
Minerals Management Service
Offshore Environmental Assessment Division, Washington, DC
National Park Service
Denver Service Center
Fossil Bed National Monument
Golden Spike National Historic Site
Great Basin National Park
Western Regional Office
Division of Environmental Compliance, Washington, DC
Division of Environmental Quality-774, Washington, DC
Regional Director, Rocky Mountain Regional Office, Denver, CO
Pacific Northwest Regional Office, Seattle, WA
U.S. Geological Survey
Environmental Affairs Program, Reston, VA
Department of Agriculture
Forest Service,
Environmental Coordination Staff, Chief of Forest Service, Washington, DC
Intermountain Region, Ogden, UT
Sawtooth National Forest, Twin Falls, ID
Humboldt National Forest
Soil Conservation Service
Mel Anderson, District Supervisor, USDA - APHIS - ADC, Ely, NV
Office of Environmental Coord., Washington, DC
Department of Defense, Air Force
Office of Deputy A/S of the USAF, Washington, DC
HQ-USAF/LEEV, Washington, DC
Edwards AFB, CA

Hill AFB, UT
Chief, Plans, Programs & Resources Division,
Wing Airspace Manager, Mountain Home AFB, ID
Department of Defense, U.S. Army Corps of Engineers
North Pacific Division
South Pacific Division
Department of Energy
Office of Environmental Compliance
Government Printing Office
Marked Files
Depository Receiving Section

State Agencies

California

Department of Water Resources, Energy Division, Sacramento
California Energy Commission, Environmental Protection Office, Sacramento

Idaho

Planning Commission Secretary, Lincoln County, Planning Commission, Shoshone
Public Utilities Commission, Boise
Historic Preservation Office, Boise
Idaho Department of Lands, South Central Area, Gooding and Boise
State Archaeologist, U.S. Assay Office, Archaeology, State Board of Education
Department of Parks and Recreation, Boise
Department of Fish and Game
Director, Boise
Regional Director, Jerome
Department of Transportation, Boise
Department of Water Resources, Boise

Nevada

Administrator, Division of State Lands, Carson City
Department of Wildlife, Elko, Ely, Las Vegas, and Reno
Department of Administration, Carson City
Division of Forestry, Elko and Las Vegas
Division of Historic Pres. & Archeology, Historic Preservation Officer, Carson City
Natural Heritage Program, Carson City
Department of Planning, Henderson
Department of Transportation, Ely
District Manager, State Park System, Panaca
Department of Agriculture, Las Vegas
Director, Mailroom Complex, Las Vegas

Military Department, USPFO
Legislative Counsel Bureau

Utah

Wildlife Resources, Habitat Chief
State Lands & Forestry, Richfield
Geological & Mineral Survey, Salt Lake City
Parks and Recreation, Salt Lake City
Department of Transportation

Other

Center for Urban Affairs & Policy Research, Evanston, IL
Chief, Department of Water Resources, Energy Division, Sacramento, CA

Local Agencies

Idaho

Burley District Advisory Council, Twin Falls
Cassia County, County Commissioners
City of Twin Falls
    Community Development Office
    Regional Water Planning & Advisory Board
Gooding County, County Commissioners
Jerome County, Planning and Zoning Commission, Jerome
Lincoln County, County Commissioners, Shoshone
Twin Falls County, County Commissioners

Nevada

City Engineer, Ely
City of Henderson
    Economic Development Dept., Henderson
    Planning Department
City of Boulder City
    Department of Public Works
    Community Development Director
City of North Las Vegas
    Community Planning & Zoning
    Office of Economic Development
Clark County
    Reg. Flood Control District, Las Vegas
    Comprehensive Planning, Las Vegas
    Conservation District

County Manager
School District
Zoning Administration
Economic Diversification Program, White Pines Development Comm., Ely
Elko County
Association of Conservation Districts, Elko
County Manager
Library Bookmobile
Elko District Advisory Council, Wells
Juab County, County Commissioners
Lincoln County, County Commissioners
Nevada League of Cities, Carson City
Nevada County Planning Department
Nye County
Road Department, Tonopah
County Commissioners
White Pine
Conservation District, Ely
County Commissioners, Ely
White Pines Development Committee, Economic Diversification Program, Ely

Utah

City of Boulder City,
Department of Public Works, Boulder City
Community Development Director
Bear River Association of Governments, Logan
Millard County
Planning Administration, Delta
County Commissioners, Fillmore
Six County Economic Development, Richfield

Senators, Congressmen, Representatives, Commissioner, etc.

Idaho

Steven D. Symms, US Senator, Boise
James A. McClure, US Senator, Boise
Larry E. Craig, US Representative, Boise
Richard Stallings, US Representative, Boise
Governor's Office
Special Assistant Natural Resources

Nevada

Harry Reid, US Senator, Reno
Richard H. Bryan, US Senator, Reno
James H. Bilbray, US Representative, Reno
Barbara Vucanovich, US Representative, Reno
John C. Carpenter, Assemblyman, Elko
Kris Johnson, District Representative, Las Vegas
Bob Miller, Governor, Carson City

Utah

Jake Garn, US Senator, Salt Lake City
Orrin G. Hatch, US Senator, Salt Lake City
James V. Hansen, US Representative, Salt Lake City
Wayne Owens, US Representative, Salt Lake City
Howard C. Nielson, US Representative, Salt Lake City
Norman H. Bangerter, Governor, Salt Lake City

Organizations

James W. Adams, Avery Engineering Company
Ely Ades, President, Mountain Mines, Inc.
Edwina Allen, Sierra Club, Middle Snake Group
American Mustang & Burro Association
Arctic Precious Metals, Inc.
Russell Avery, Avery Engineering Company
Frank Bachman, J.R. Simplot Co., Land & Livestock Division
Carl Baker, Silver Creek Ranch
Cathy Barcomb, Executive Director, Commission for the Preservation of Wild Horses
Duane Bauer, Western Rock Products
Michael Bean, Environmental Defense Fund
Kraig Beckstrand, Nevada Division of Wildlife
Beth Blattenberger, Seattle City Lights
Kennecott Alligator Ridge Co.
Stu Bengson, UFWDA
Lois Blumberg, The Wilderness Society
Dave Brickey, Sierra Club, Toiyabe Chapter
Keith Brecheisen, Baron Mining Corporation
Betsy Buffington, The Wilderness Society
Betty Burge, TORT Group
Karl Burke, LAC Minerals
Russ Butcher, Pacific Southwest Director, National Parks & Conservation Assoc.,
John A. Cameron, Jr., Vice President, Portland General Exchange
Steven Carter, Carter Cattle Company
Jack Christensen, Bar O Ranch

Laura Christenson, William Danley, AMAX Gold Inc.
Russell J. Cowley, Six County Economic Development
Willy Cunningham, National Outdoor Leadership School
Colorado River Commission
Alan Cox, Homestake Mining Company
Courtney Dahl, Delamar Valley Cattle
William D. Davidson, Ely District Grazing Board
Don Dayton, SNORE
Paula Del Giudice, Nevada Wildlife Federation
Desert Mountain Realty, Inc.
Desert National Wildlife Range
Jack Doyle, Aggrandize Mining Company, Inc.
Earth Satellite Corporation
Sheldon Eppich, President, Utah Wildlife & Outdoor Rec. Federation
Rey Flake, H. H. Land & Cattle Co.
Donna Flanigan, Flanigan & Flanigan, Inc.
Stephan D. Flint, Bridgerland Audubon Society
William G. Fonte, Sundance Realty & Development
H. Paul Friesema, Center for Urban Affairs & Policy Research
Bob Fulkerson, Citizen Alert
Nancy Green, The Wilderness Society
Dian M. Grueneich, Grueneich & Ellison
Paula Del Giudice, Nevada Wildlife Federation
Bruce Hall, Victor Land & Livestock Co.
Lloyd Harvego, President, Resource Management International, Inc.
Stan Haye, Sierra Club, CA/NV Mining Committee
Pat Hasenoehrl, Idaho Power Company
John Hiatt, Conservation Chrmn., Red Rocks Audubon Society
Larry Hippler, Idaho Bureau of Aeronautics
Pete Hovingh, Intermountain Water Alliance
Thomas H. Hunt, National Trails Preservation Officer, Oregon-California Trails Office
Judy Imhoff, PSCo
Kennecott Alligator Ridge Co.
Bruce King, Bear River Association of Governments
John Kinnear, Laucirica Ranch
Mel Kirschner, Noble-Tech Group, Ltd.
Hank Knox, Utah Wildlife Federation
Don Kondoleon, California Energy Commission
Mary Kozlowski, Las Vegas Board of Realtors
Lands of Sierra, Inc.
Dawn Lappin, Wild Horse Organized Assist
Doug Larson, WIEB
Rudy Lukez, Conservation Chair, Sierra Club, Utah Chapter
Robert W. Maichle, Motorcycle Racing Association of Nevada
Jack McCall, High Country Association
Beverly Mellinger, Desert Echo
Minerals Exploration Coalition
Rick Moody, West Millard Wildlife Conservation Association

Randall Morris, Committee for Idaho's High Desert
I. Claire Morrow, Warm Springs Ranch
Nevada Wildlife Federation
George Nesgos, Chas. T. Main, Inc.
Kathryne Olson, Curator, Lost City Museum
Oneida Farms, Inc.
Nancy Sue Pearlman, Ecology Center of So. California
Vern Peterman, Resource Concepts Inc.
Dale O. Pierce, Burley District Grazing Advisory Board
Irene Porter, Southern Nevada Home Builders Assn.
Catherine Quinn, Utah Wildlife Resources
Barbara J. Rehfield, AMBA
Charles Reinhold, Arizona Power Pooling Association
George B. Rice, Kerr-McGee Chemical Corporation
George Rogers, Silver State Disposal Company
Steven Rupp, Resource Management Int.
Tim Seaton, S & S Geologic Consulting Services
Barry Singleton, Singleton Associates Engineering
Paul Smith, Smith Bros. Ox Ranch
Southern Utah Wilderness Alliance
Al Steninger, Western Range Service
Glen Swalbert, Miller Co. Tourism
Dave Tilford, Desert Mt. Realty, Inc.
Mark Trinko, NOHUC
Robert Tyler, Committee for Idaho's High Desert
Phillip Wagner, Ducks Unlimited
Robert R. Wright, Robert R. Wright Company
Richard Wyman, Wyman Engineering
Ann Zorn, Nevada League of Women Voters

Individuals

Mr. & Mrs. C.G. Andress
Walter Barbuck
Amanda Barrett
Carl F. Beker
Wally Bellows
Carl Bennett
Garlyn Bergdale
Elliott Bernshaw
Jim & Cindy Bitzenburg
Sharon Boivin
Ron Booth
Steve Bradhurst
James Bringle
David Brown
Mary Lou Brown
Mike Buchenau
Grace Bukowski
Carolyn Burk
Van Burroughs
Thorne J. Butler, M.D.
John Cape
Ella Lee Carone
Carole Carter
Walters Charley
Bill Chisholm
Jack Claiborn, Jr.
Todd & Sue Ann Claiborn
John Clark

Lenore Clay
Mark Cochran
Demar and Elizabeth Dahl
M. Jeoffry Dail
Doug Dashall
Doug Daskell
Dave Davis
Beth Defend
Lynn Dille
Wayde Dudley
Frank Elder
David Eubank
Thomas Fahy
J.A. Favinger
Michael Fewell
R.T. Fitzsimons
Gordon Foppiano
John Forman
Van Fowers
Golden Gardner
JoAnne Garrett
Greg Gault
Sydney Gordon
Robert Hadfield
P.D. Hargis
Roger J. Hatch
Gene Heckethorn
E. Nick Henery
Joseph L. Herring
Charles L. Hester
Luke Heyerdahl
Bruce Hinckley
David Hornbeck
W. Berry Hutchings
Margaret G. Hyde
Catherine C. Igoa
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Sergio Jaramillo
Jim Jensen
Marion Johnson
Becky Johnstone
Bob Jones
Larry Jones
Dr. Stanley E. Jones
Alfred King
R. Jane Kinnee
Bruce and Clarissa Kunkel
Dorothy Larson
Eric Law
Clyde Lay
Robert & Christie Leavitt
J.A. Leitch
Barbara Lewis
Frank W. Lewis
Howard Lieberman
Warren Linnell
Richard Loper
Calvert Lyon
Donald Mack
Dewitt Marshall
W.E. McLean
Joe McGloin
Rod McKenzie
Mitchell Meek
Joe Merkel
Alvin Meyerhoff
Craig W. Miller
Greg Miller
Dan Moreno
Kenneth N. Morris
George F. Morrow
Barbara Murphy
Carl L. Myers
Jay Nance
Dave Naslund
Tom Needham
Grant Nelson
Albert Nickle
William A. Nisbet
Wilma L. Norris
Kevin O'Brien
Kimberly Otero
Randy Palmer
Ruth PearsonG.M. Perkins
Willard Pete
L.W. Petersen MC
Arthur Pidduck
Geoffrey Pool
John Pruess
John Qoyawayma
Catherine Quinn
Kenneth R. Rand
Vernon Ravenscroft
Jerry Reagan
Lori Rhodes

Gene Rogge
Margaret Rowe
Martha Rozelle
Joe Sanchez
Charles Scardino
Marjorie Sill
Cindy Smith
Fred Smith
Linwood Smith
Rick Smith
S.J. Smith, M.D.
Arlene C. Southard
Frank Sperry
Rex Steninger
Jean Stevens
Emilie Strauss
Thomas E. Strochon
Karen Sussman
Tim Sutko
Helen Swainston
Thomas Tabacco
Mike Takac
Paul Trenter
Herbert Uhlig
Charles P. Van Epps
Robert O. Vaughan
John Wahl
Hal W. Walker
Craig Walton
Derril Wenzel
Vivian Bowie & Roy F Westoak
Loretta Williams
Dee C. Wilcox
E.E. Wright
Ed Wright
Harvey W. Young Jr.
Ronald Younger

Utilities

Sohrab Allahyari, San Diego Gas & Electric
Antonio Alvarez, Pacific Gas and Electric Company
Don Bacon, TransAlta Utilities Corporation
Carl Barnett, Sierra Pacific Power Company
Beehive Telephone Company, Inc.
Bob Bickers, AT&T Communications

R.J. Blatnik, Public Service Company of Colorado
Daniel K. Bowers, Idaho Power Company
James Bringle, Sacramento Municipal Utility District
Craig Cox, Utah Power & Light Company, Environmental Services
Thomas A. Delawder, Vice President, Tucson Electric Power Company, Power Supply & System Control
Department of Water & Power, Transmission Systems Engineers
Bill Eisinger, Power Engineers
Edward Elliott, Idaho Power Company Shareholder
Ela Esterberg, Seattle City Light
S. Etcheverry, Nevada League of Cities
Greg Galbraith, Sierra Pacific Power Company
Peter Gerloch, Sacramento Municipal Utility District
I.S. Hagen, City of Los Angeles, Department of Water & Power
Linda Hensley, Sacramento Municipal Utility District
Kris Hohenshelt, Kern River Gas Transmission Company
Chuck Holloway, City of Los Angeles, Department of Water & Power
Brian Jobson, Sacramento Municipal Utility District
Edward Karapetian, City of Los Angeles, Department of Water & Power, System Development Division
Donald W. Kimball, Executive Vice President and Manager, Arizona Electric Power Cooperative, Inc.
Delmar Leatham, Overton Power District #5
Jim Lee, Deseret Generation and Transmission Cooperative
Thomas A. Lockhart, Vice President, Power Systems, Pacific Power--Utah Power
Mike Mann, Idaho Power Company
Kenneth H. McKinney, General Manager, M-S-R Public Power Agency
Carolyn S. McNeil, Utah Associated Municipal Power Systems
Ronald P. Merlo, City of Los Angeles, Department of Water & Power, White Pine Power Project
Selby Mohr, Sacramento Municipal Utility District
Anthony Morrell, Environmental Manager, U.S. Department of Energy, Bonneville Power Administration, Environmental Department
Robert V. Myers, Senior Vice President, Puget Sound Power & Light Company, Operations
Ray Nelson, Power Manager
Ricky Poon, Bonneville Power Administration, Idaho Falls District Office
Dave Porter, Sierra Pacific Power Company
Ed Potthurst, Seattle City & Light, Environmental Affairs
T.W. Prange, Idaho Power Company
Gary H. Richins, Environmental Coordinator, Deseret Generation and Transmission Cooperative
Edward Roman, Sacramento Municipal Utility District
Gregory M. Rueger, Senior Vice President, Pacific Gas and Electric Company
David Sabo, Western Area Power Administration
Dennis Schwehr, Nevada Power Company
George Sheldon, Vice President, Operations, Plains Electric Generation & Trans.
F.K. Skaggs, Idaho Power Company

Stan Smith, Intermountain Power Service Corporation
Allen Stott, Utah Power & Light Company, Salt Lake City, UT
Robert Taylor, Idaho Power Company
Jim Tomsic, Asst. Area Manager for Engineering, Western Area Power Administration
Art Trevino, Southwest Gas Corporation
Dennis Vermillion, Washington Water Power Company
Murray Westgate, Nevada Power Company
John P. Wheeler, General Manager, Mt. Wheeler Power Company
Glen P. Willardson, Garkane Power Association
H.F. Wright, Idaho Power Company

Media

Paul Beebe, Idaho Statesman
Doug McMillan, Reno Gazette Journal
D. Mitchell, KKLZ Radio
N.S. Nokkentved, Times News
Keith Rogers, Review Journal
Connie Simkins, Lincoln County Record
Jim Woolf, Salt Lake Tribune
Ely Daily Times
High Country News
High Desert Advocate
Public Lands News, Washington, DC

Libraries, Universities and Museums

Nevada

Ann Brinkmeyer, State of Nevada, Nevada State Library, Carson City
Jaak Daemen, Mackay School of Mines
Carl Fox, Bio-Resources Center, Desert Research Institute, University of Nevada-Reno
John W. Fordham, Desert Research Institute, Water Resources, University of Nevada-Reno
Ron Marlow, RECON, Department of Biological Sciences
Teri Knight, The Nature Conservancy, Barrick Museum, University of Nevada
Kelly Jackson, Staff Council, University of Nevada, Las Vegas, Public Service Commission, Carson City
David E. James, Civil & Environmental Engineer, University of Las Vegas, Las Vegas
Jan Nachlinger, The Nature Conservancy, Reno
Dr. Kevin Rafferty, Clark County Community College, Division of Behavioral Sciences, North Las Vegas

New York

Donald F. Finn, Geothermal Energy Institute, New York City

Utah

Dr. Allen Rasmussen, Utah State University, Range Science Department, Logan

Washington

Attn: President, American Alpine Institute, Bellingham

Indian Interests

Peter Ford, Chairman of Baker Advisory Board
Fort Hall Business Council, Shoshone-Bannock Tribes
Amy Heuslein Scott, Chief, Branch Environmental Quality Services, Phoenix Area Office, Confederated Tribes of Goshute Res.
Calvin Meyers, Moapa Band of the Paiute
Jerry Millett, Chief, Western Shoshone National Council
Vernon Strickland, Power Manager, USDI Bureau of Indian Affairs
Louella Tom, Tribal Chairperson, Moapa Band of Paiute
Raymond Yowell, Chief, Western Shoshone National Council

Bureau of Indian Affairs
Western Nevada Agency
Phoenix Area Office

APPENDIX H

AVAILIBILITY OF TECHNICAL REPORTS

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List of Technical Reports

Volume I - Objectives, Procedures and Results
- Chapter 1 - Objectives, Procedures and Results

Volume II - Natural Environment
- Chapter 2 - Air Quality and Meteorology
- Chapter 3 - Earth Resources
- Chapter 4 - Biological Resources

Volume III - Human Environment
- Chapter 5 - Land Use Resources
- Chapter 6 - Visual Resources
- Chapter 7 - Socioeconomics
- Chapter 8 - Electrical, Biological, Health and Safety Effects

Volume IV - Cultural Environment
- Chapter 9 - Cultural Resources

Data Tables for Natural Environment
- Earth Resources
- Biological Resources

Data Tables for Human Environment
- Land Use Resources
- Visual Resources

Data Tables for Cultural Environment
- Cultural Resources

The Technical reports are available for review in the following locations:

California

Environmental Review Coordinator
EPA Region IX
215 Freemont Street
San Francisco, CA 94105

South Pacific Division
Army Corps of Engineers
630 Sansome Street, Rm. 1216
San Francisco, CA 94111

National Park Service
450 Golden Gate Ave., Box 36063
San Francisco, CA 94102
415-556-4196

Colorado

Bureau of Reclamation
EPA Region VIII
Building 67, P.O. Box 2507
Denver, CO 80225-0007

Environmental Review Coordinator
Denver Federal Center (D-150)
999 18th St., Ste. 1300
Denver, CO 80202-2413

Denver Service Center
Intermountain Field Oper. Center
Bureau of Mines, MS-5090
P.O. Box 25086, Bldg. 20
Denver, CO 80225

USDI Bureau of Land Management
Denver Federal Center Building 50
Denver, CO 80225

Idaho

Boise District
USDI Bureau of Land Management
3948 Development Ave.
Boise, ID 83705
208-384-3300

Burley District
USDI Bureau of Land Management
Route 3, Box 1
200 S. Oakley Highway
Burley, ID 83318
208-678-5514

Idaho State Office
USDI Bureau of Land Management
3380 Americana Terrace
Boise, ID 83706
208-384-3000

Shoshone District
USDI Bureau of Land Management
400 W. S Street
Shoshone, ID 83352
208-886-2206

Bureau of Reclamation
1359 Hansen
Burley, ID 83318
208-678-0461

Bureau of Reclamation
P.O. Box 043-550 West Fort Street
Boise, ID 83724
208-334-1937

State of Idaho
Historic Preservation Office
210 Main Street
Boise, ID 83702
208-334-3861

Nevada

Humboldt National Forest
USDA Forest Service
Ely Ranger District
350 8th St.
Ely, NV 89301
702-289-3031

Elko District
USDI Bureau of Land Management
P.O. Box 831
3900 E. Idaho
Elko, NV 89801
702-738-4071

Ely District
USDI Bureau of Land Management
Rt. 5, Box 1
Pioche Highway
Ely, NV 89301
702-289-4865

Las Vegas District
USDI Bureau of Land Management
P.O. Box 26569
4765 Vegas Dr.
Las Vegas, NV 89126
702-647-5000

Nevada State Office
850 Harvard Way
Reno, NV 89520-0006
702-785-6483

Great Basin National Park
USDI Bureau of Land Management
Highway 488
Baker, NV 89311
702-234-7331

USDI Fish & Wildlife Service
4600 Kietzke Lane, Bldg. C-125
Reno, NV 89502
702-784-5227

USDA Forest Service
Humboldt National Forest
976 Mountain City Highway
Elko, NV 89801

State of Nevada
State Historic Preservation Office
201 S. Fall Street, Nye Bldg.
Carson City, NV 89710

Nevada Department of Wildlife
P.O. Box 10678
Reno, NV 89520

Moapa Band of the Paiutes
P.O. Box 129
Moapa, NV 89025
702-865-2787

Nevada State Clearinghouse
Division of Administration
Capitol Complex
Carson City, NV 89710

Oregon

Planning Division
North Pacific Division
Army Corps of Engineers
P.O. Box 2870
Portland, OR 97208

Utah

Utah State Office
USDI Bureau of Land Management
P.O. Box 45155
324 S. State St.
Salt Lake City, UT 84145-0155
801-539-4122

Richfield District
USDI Bureau of Land Management
900 N. 150 E.
Richfield, UT 84730
801-896-8221

Bureau of Indian Affairs
P.O. Box 986
Cedar City, UT 84721
801-586-1121

State of Utah
State Historic Preservation Office
300 Rio Grande
Salt Lake City, UT 84101
801-533-5755

Virginia

Environmental Affairs Program
U.S. Geological Survey
National Center (423)
Department of the Interior
Reston, VA 22092

Washington

Environmental Review Coordinator
EPA Region X
1200 Sixth Ave.
Seattle, WA 98101

Western Field Oper. Center
Bureau of Mines, MS-5100
E. 363rd Avenue
Spokane, WA 99202

Washington, DC

USDI Branch of Mineral Assess.
Bureau of Mines
MS-5050, Rm. 819
Washington, DC 20240

Environmental Quality Division-774
National Park Service
P.O. Box 37127
Washington, DC 20013-7127

Division of Environmental Coord.
Fish and Wildlife Service
Department of the Interior
Washington, DC 20240

HQ-USAF/LEEV
Environmental Division
Rolling, AFB, Bldg. 516
Washington, DC 20330-5000

Office of Deputy A/S of the USAF
Envir., Safety, Occupational Health
SAF/RQ Room 4C916, Pentagon
Washington, DC 20330-0001

Office of Environmental Coord.
Department of Agriculture
Forest Service - 1204
P.O. Box 2417 - Rm. South Bldg.
Washington, DC 20013

Office of Federal Activities
Environmental Protection Agency
401 M Street, S.W.
Washington, DC 20460

Office of Federal Activities (A-104)
Envir. Protection Agency, Rm 2119 Mall
401 M Street, S.W.
Washington, DC 20460

Offshore Envir. Assessment Div.
Minerals Mgt Service
Department of the Interior
Washington, DC 20240

USDA Forest Service
Environmental Coordination Staff
S. Build., 12th & Independence Ave. SW
Washington, DC 20250

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